THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON THE MARKETING PERFORMANCE OF JORDANIAN HOTELS

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Dedication

This work is dedicated to my mother and father, who have been the greatest teachers in my life and are always in my heart. This work is also dedicated to my wife and my son ‘Hashem’ for their continuous love and support. Finally, to my brothers and sisters for all their encouragement they have offered me during this endeavour.

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Abstract

Purpose – This thesis proposes to address the research gap of understanding the relationship between 'Information Communication Technology (ICT)' and 'marketing performance' in upscale hotels in Jordan.

Design/methodology/approach – Extensive literature that links both ICT and marketing performance forms the framework of this research. This research examines the level of ICT usage by hotels as well as their marketing performance to support the theoretical framework that can be used for practical application in the hospitality industry and provides direction for both practising managers and theoreticians. The quantitative survey technique, using structured closed questions, was the main method applied to test the theoretical framework and all of its hypotheses as well as to provide answers to all the research questions. The quantitative survey was undertaken of 61 Jordanian hotels in Amman, Aqaba, the Dead Sea and Petra over the time period from May to July 2013. The senior managers including CEOs, managing directors, and general managers or marketing directors of the hotels, who are responsible for making decisions regarding the hotel marketing activities, were selected to provide the primary data regarding the use of ICT in their hotels and their marketing performance.

Findings – The findings demonstrate that the majority of Jordanian hotels have a high level of ICT adoption, however, the integrated (i.e. interconnectivity) level and the usage level of ICT are significantly less. Moreover, the availability, interconnectivity and the usage extent of ICT vary according to the size of the hotel, star-rating, and the experience of hotel management in ICT. The findings also suggest that Jordanian hoteliers are to some extent satisfied with their marketing performance and particularly with the financial aspect of marketing performance. Additionally, the results exhibited important differences in the contribution that each technology makes to the marketing performance. For example, the electronic-points-of-sales systems (EPOS) and the booking-enabled hotel Website are the highest individual ICT systems that impact the marketing performance. Finally, the invention measures (e.g. the ability of launching new products/ services) are the most affected aspect of marketing performance when adopting interconnected ICT systems in hotel establishments.

Practical implications – There are multiple areas and issues that need to be considered in making and implementing ICT investment decisions if they are to contribute to the hotel marketing performance. Hotel companies need to be selective in their ICT adoption decisions and look at each ICT system from the marketing management perspective. The Electronic Distribution Systems (e.g. Booking-Enabled Website), and Hotel Front-Office Systems (e.g. PMS) are some of the most differentiating technologies, which may be implemented by 3-, 4- and 5-star hotels to improve marketing performance, especially; the non-financial aspects of marketing performance (e.g. the ability to launch new processes and services and the perceived quality of these processes and services).

Originality/value – This is one of the first studies in the hospitality field that offers practical evidence on how ICT systems affect the marketing performance. This research identifies the most discriminating ICT solutions across three, four, and five-star hotels, and discusses their potential for improving marketing performance. It also provides recommendations for Jordanian hotels to improve their marketing effectiveness by using the appropriate technologies in the hospitality industry.

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List of Abbreviations

ADS	Alternative Distribution Systems
AHTA	Arab Hotel and Tourism Association
ANOVA	Analysis of Variance
ASP	Application Service Provider
C/BMS	Conference/ Banqueting Management Systems
CRM	Customer Relationship Management
CRS	Computerise Reservation Systems
DIS	Destination Information Systems
EMS	Energy Management System
EPOS	Electronic Points of Sales
GDP	Gross Domestic Product
GDS	Global Distribution Systems
HFOS	Hotel Front Office System
HIS	Hotel Information System
HRS	Human Resources Systems
ICT	Information & Communication Technology
IH&RA	International Hotel and Restaurant Association
IMF	International Monetary Fund
I-RES	In-Room Entertainment System
JHA	Jordan Hotel Association
JTB	Jordan Tourism Board
LAN	Local Area Network
LMS	Leisure Management Systems
MkIS	Marketing Information System
MOTA	Ministry of Tourism and Antiquities (in Jordan)

MPM	Marketing Performance Measuring
PC	Personal Computer
PMS	Property Management Systems
S&MS	Sales & Marketing Systems
UAE	United Arab Emirates
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNWTO	United Nations World Tourism Organisation
VPN	Virtual Private Network
YMS	Yield Management Systems

Chapter 1: Introduction and Overview

1.1 Introduction

This chapter explains the relevance of this research and positions the reader in the research area. Therefore, this chapter summarises the structure of the research study presenting the background of the research and its backbone. Moreover, it justifies the need for the research through showing its importance. Then it clarifies the research problem statement highlighting research aims and objectives. Finally, this chapter outlines the scope and the structure of this research thesis to the reader.

1.2 Research Background

Since the hotel sector is a central part of the Jordanian tourism industry; the marketing performance of hotels has a major impact on Jordan's overall attractiveness as a tourist destination. Thus, the primary motivation for this research started with the inquisitiveness of the author into whether "marketing performance of Jordanian hotels can be improved by using a particular set of ICT tools?" Another question followed "is there any influence of ICT level in Jordanian hotels working environment and their marketing performance?" This stimulated the author's interest in investigating the previous literature surrounding both "ICT" and "marketing performance" in hospitality, hoping to find hints or answers to these questions.

Reviewing related literature, alongside the author's previous experience in doing research in a similar subject related to Jordanian tourism industry, helped to build a more robust research question (i.e. what is the relationship between the use of ICT systems and the marketing performance of Jordanian hotels?). Therefore, the purpose of this research is to examine the impact of "ICT" on "marketing performance" of hotels in Jordan.

The research presented here can be considered as a journey that explores the process to find answers to this question. Furthermore, this research tells a story about the challenges, the difficulties, the arguments, the analysis, the interpretations, the implications and the empirical findings that emerged from investigating this issue, as well as, what the author had to overcome, learn and respond to during this research process.

Marketing is important for any organisation, however for the hospitality industry, which is an important element of tourism infrastructure for any country, marketing is essential. Worldwide the majority of hotels are using ICT applications to support their activities; especially, in marketing. The revolution in ICT has changed the way hospitality firms conduct business. The literature review shows that the hospitality industry is rapidly progressing in its utilisation of ICT for better customer services, customer satisfaction and competitive advantage. Due to the distinctive characteristics for ICT and the hospitality industry; the shape and the nature of hospitality marketing is constantly evolving. For instance, the swift spread of the Internet has rapidly reformed the growing electronic channels for marketing (Ruiz-Molina et al. 2010; Ip et al. 2011).

Furthermore, hospitality providers are competing through the use of new technologies in the field of marketing. Andrlic and Ruzic (2010) acknowledged that the evolution of ICT offers a vast amount of new possibilities in marketing within hospitality. From a hospitality point of view, Connolly (2000) argues that both marketing and ICT are inseparable. However, despite the popularity of research on both ICT and marketing performance, little empirical evidence exists on the relationship between them within the hospitality industry.

The evaluation of ICT relationship with marketing performance helps clarify the marketing benefits of adopting several ICT tools in the hospitality industry. Typically, ICT applications vary and are changeable over time. Moreover, ICT investments need a lot of money, training and effort to implement and maintain. Thus, many hotel companies are forced to be selective in their ICT investment decisions.

Therefore, this research intends to provide important insights into the effects of ICT usage on marketing performance in Jordanian hotels. Firstly; by analysing how ICT applications are actually employed by Jordanian hotels. Secondly; by assessing the marketing performance of these hotels, including the financial and non-financial measures. Finally; by determining any relationships between ICT applications (independent variables) and marketing performance (the dependent variable). This study also intends to present a better understanding of the key factors that influence both the adoption of ICT and the marketing performance of the Jordanian hotel industry.

1.3 Justification for the Research

Despite its wide ranging touristic appeal from ancient Petra to ultra-modern five-star hotels in the Red Sea Resort of Aqaba, Jordan was only ranked 64th in a poll of 133 countries according to the Travel and Tourism Competitiveness Index in 2011 (World Economic Forum 2011) which established to measure the policies and factors that make it attractive to develop the tourism industry in different countries. This rank is down ten places compared to 2009 (World Economic Forum 2009). However, the United Arab Emirates (UAE) tops the Middle East and North Africa region (30th overall), up three places from the previous assessment. Although the UAE lacks 'natural tourism resources' (116th), its infrastructure receives high marks and their government is seen as carrying out very effective destination-marketing campaigns (World Economic Forum 2011).

The Travel and Tourism Competitiveness Index (World Economic Forum 2009; 2011) reveals the importance of ICT as one of the travel and tourism 'business environment and infrastructure.' It is therefore necessary to adopt reliable ICT applications and techniques to strengthen marketing strategies in all businesses working in this sector, including the hospitality industry. This consequence reflected the author's interest in understanding ICT within the hospitality marketing context. Thus, the impetus for this research emerged from the assumption that the implementation of the correct ICT tools and applications by hospitality companies can play a significant part in enhancing their marketing activities.

Although most organisations, including hotels, understand the importance of using ICT in marketing their products and services, there are no accurate studies that measure the level of using ICT applications on the ground by hotels in a country that has potential tourism capabilities like Jordan. The advantages from increasing knowledge about ICT usage by hotels, particularly on the practical side, are considerable. The author believes that if hotels have the ability to choose and develop an integrated set of appropriate ICT systems, then their performance, especially in marketing, may receive a significant boost.

On the other hand, marketing is considered a key element for any successful business. However, to date there has been limited practical research on the measures used to assess marketing effectiveness in the hospitality and tourism field. Moreover, there is a significant gap in research pertaining to the hotel industries in developing countries. For example; Sainaghi (2010) examined 137 papers that studied hotel performance and found that only two papers (2%) were conducted in countries of the Middle East. Jordanian hotel companies,

like many other organisations, rarely measure their marketing performance due to the methodological difficulty in its measurement.

The potential benefits from expanding the knowledge base of marketing performance measurements, especially in the practical side, are substantial. The author argues that if firms have the ability to develop an integrated set of applicable measures alongside the ability to methodically collect, analyse and disseminate data about these measures, then marketing may be perceived as a more credible subject and more easy to execute.

Therefore, there is a need for extensive studies that thoroughly estimate how ICT applications affect the marketing performance of hotel companies. The current literature on this topic of hospitality is not yet conclusive and there have been limited conceptual and empirical studies into this area. Having identified the gap, this study aims to determine the impact of ICT on marketing performance of hotels (i.e. Jordanian upscale hotels) by discussing and establishing methods by which we can measure the ICT usage and marketing performance.

To sum up, the rationale for this study is to gain a better understanding of the impact of ICT on the marketing performance of hotels. This study also investigates the measures used to evaluate marketing performance within the hospitality industry. The researcher chose Jordan because it is a developing country, poorly represented in the literature, and because tourism and the hospitality industry form a considerable part of its economy.

1.4 Research Area

As outlined above, this research focuses on the relationship between ICT and marketing performance within hospitality industry. Specifically, the researcher is interested in understanding the availability, interconnectivity and the usage of ICT tools, primarily those employed by Jordanian upscale hotels, and exploring their relationship to the marketing performance. An interesting example here is to see if the use of electronic distribution systems leads to better marketing performance due to the engagement of such systems in providing the product at a place which can be access conveniently by consumers.

This research is also concerned with the methods of measurement for the marketing performance for hotels. This will be analysed by reviewing and evaluating the common measures in the literature and subsequently implementing them in this practical research. This is very much like building an integrated diagnosis questions checklist with controlled metrics for performance measuring.

Along those lines, the hospitality industry was also attractive in the context of this proposed work since the hospitality industry and its potential are very attractive to a country like Jordan for sustainable development. Therefore, as shown in Figure 1.1, the research area here is considered as an interdisciplinary which spans the boundary between marketing, hospitality and ICT.

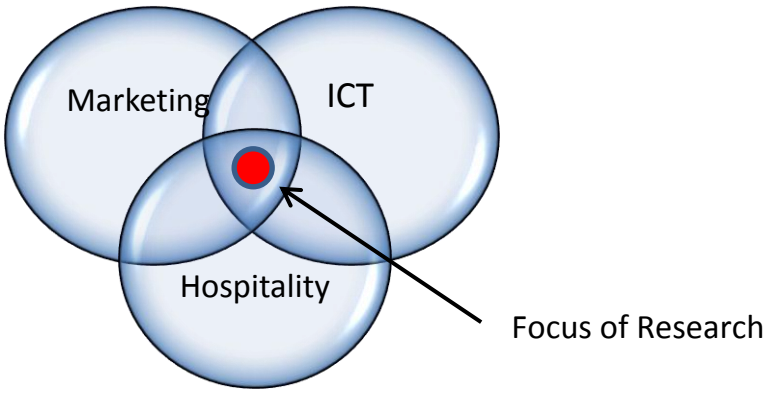


Figure 1.1 Research Area

1.4.1 The hospitality industry

The hospitality industry has become a major economic activity and the expectations regarding the use of leisure time have grown (e.g. Williams 2006). According to the Hospitality Guild (2012), the hospitality industry is comprised of several kinds of establishments including hotels, restaurants, fast food, food service management, coffee shops etc. It is considered as a related, forming and supporting industry within the tourism supply chain (Porter 1998). The hospitality industry is described as labour intensive with operational diversity, product intangibility and problem immediacy (Ghei and Nebel 1994).

This research has a specific focus on three, four and five-star hotel establishments, which form a significant part of Jordanian hospitality industry. A hotel can be defined, simply, as an establishment that offers lodging paid on a short-term basis. The typical hotel establishment provides at least the basic accommodation features (i.e. a room with a bed) with some additional common features (e.g. a telephone, a Wi-Fi network, a TV or a mini-bar) and may include some luxury features (e.g. bathrobes and slippers). Larger hotels may also offer extra guest facilities such as a fitness centre, childcare, swimming pool, business

centre, conference facilities and social function services. The quality of the hotel and its services is usually indicated by a star-rating system with one to five being most common.

Luxury hotels, which are normally classified with a four and five star rating (governed by the country classification standards), are termed as upscale (i.e. upmarket) hotels. In business, upscale and upmarket reflect the market designed for higher-income consumers. Therefore, upscale full service hotels offer luxury amenities, full service accommodations, and on-site full service restaurants, in addition to the highest level of personalised and professional service. However, consumers in the luxury hotels have increasingly demanded bigger value for money and higher standards of facilities and service. This has pushed operators to become more and more similar to each other in terms of the facilities and service they offer (Presbury et al. 2005). Upscale luxury hotels aim to identify the key impediments to developing and maintaining distinguishable, superior service including innovation and technologies (e.g. Rayna et al. 2009).

In fact, the term 'Upscale Hotels' refers to five and four-star hotels, however for the purpose of conducting this research, the term of upscale hotels will be used to define the luxury five and four star hotels as well as the three star hotels.

1.4.2 Marketing management

Marketing drives present and future sales, profits and growth in organisations. Webster (1992) defined marketing as what the whole company does to achieve customer preference, and hence, its own goals. Marketing can be perceived as a modern business practice and philosophy related to buying and selling goods, services, information and ideas via the traditional means or even via the modern electronic means like the Internet. Kotler and Armstrong (2014, p.27) define marketing as "the process by which a company creates value for customers and builds a relationship, in order to capture value from customers in return". Marketing scholars have long held that the core purpose of marketing is to attract and retain customers (Da Gama 2012). In this context, marketing is the process of identifying evolving customer preferences and then capitalising on them through the creation, delivery, and promotion of products/ services that satisfy the corresponding demand. This can be done by solving customers' problems and giving them what they need or want at the place and time of their choosing and at the price they are willing and able to pay (Da Gama 2012). Moreover, Ambler (2003, p.5) defined marketing as "the creation and harvesting of inward cash flow"; accordingly, every business has some interest in assessing marketing in this

sense. Therefore, current competitive environment needs marketing to be both effective and efficient.

Regarding the term 'performance', it is commonly used in all fields of management (Da Gama 2011a). Basically, performance can be defined as the end result of activity. In the literature, it may refer to the action, the result of the action, and/or the outcome when compared with a pre-determined benchmark. Consequently, scholars emphasise that performance is a multifaceted concept including not only the outcomes, but also the processes leading to them as well as the conditions affecting them (Da Gama 2011a). However, from an organisational point of view; performance is something measurable, relative, dynamic and multidimensional (Clark 1999).

Marketing performance is one of the key concepts in this thesis. Although it seems to be a simple concept with little disagreement about it, the challenge in defining it clears when one attempts to measure it. Indeed, marketing performance is a dynamic (e.g. Dickson 1996) and multidimensional (e.g. Bonoma and Clark 1988) process. Regularly, performance is considered by its effectiveness and/or efficiency.

Measurement is one of the activities to control performance within business environments. According to Da Gama (2011b) measurement is labelled as the nervous system of any establishment, because it is not possible to manage what is not being measured. H. James Harrington (Goodread 2014) has succinctly stated that: "If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it".

For most disciplines in management, we can use metrics to explain a given phenomena, find relationships, diagnose causes, build predictions, and allow comparisons. Although marketing metrics have been increasingly reported (e.g. Ambler 2000; 2003), there is insufficient practical research on this matter, especially within the hospitality industry. This research will therefore represent a step in enriching and clarifying the literature on this topic.

By reviewing the relevant, published literature research; the author found that MPM methods vary according to researchers' individual standpoints and experiences. The most common utilised measurements for marketing performance, and the key benchmarks identified with it, are discussed in detail in Chapter Four (Section 4.2).

1.4.3 Information and Communication Technology (ICT)

We live in an era where 'Information and Communication Technology' (ICT) is at the forefront of modern business concerns. There is an expanding rising understanding that ICT can provide businesses with a competitive advantage, to the extent of restructuring entire industries (Reino 2009). ICT here refers to the integration of telecommunications (e.g. telephone lines and wireless signals), hardware (e.g. computers) and the required software, middleware, storage media, and audio/ visual systems, which enable users to access, store, transmit, and manipulate information (Murray 2011). ICT is an extended synonym for information technology as it emphases the role of the unified communication technologies including the Internet, wireless networks and cell phones.

Modern ICT has created a "global village" in which society and establishments can use a vast range of new communication capabilities to communicate across the world in real-time. For this reason, ICT is regularly examined in the context of how modern ICT affects societies and business. However, by reviewing relevant literature; the author found that approaches used for ICT assessment differ significantly depending on each researcher's perspective, specialisation and background. The most generally utilised approaches for ICT assessment are discussed in detail in Chapter Four (Section 4.4).

The use of ICT in the hospitality business has expanded rapidly. According to Ham et al. (2005), improving performance is the first motive for using ICT in the hospitality industry. Chapter Three (Section 3.4) presents detailed information on the main effect of ICT usage on the hospitality business. Furthermore, the key ICT solutions for hotel industry are outlined in Chapter Three (Section 3.3). This research intends to assess the effects of using ICT on marketing performance; the current literature within the hospitality industry is limited. The literature surrounding the effects of using ICT on marketing performance within other industries is outlined in Chapter Three (Section 3.5).

1.5 Problem Statement

By reviewing the literature it is emerges that; firstly, the specific literature concerning the effects of ICT on hotels was concentrated in some particular research areas (e.g. competitive advantage), and to the knowledge of the researcher, there is no single research study on the effects of ICT on marketing performance of hotels.

Secondly, the literature on the marketing performance of hotels focused on certain research areas (e.g. marketing strategy, and guests' satisfaction and loyalty), and, to the knowledge of the researcher, there are few studies that evaluate marketing performance within the hospitality industry.

Finally, although many developing countries turned to the hospitality industry and tourism as an economic development strategy shortly after achieving political stability (Lin et al. 2010), nearly all of the research studies about ICT's effects on hotels and the marketing performance of hotels have been conducted in developed countries.

These are the major gaps in contemporary literature on the effects of ICT on hotels and the marketing performance of hotels. Therefore, further contributions to the literature are needed. Self-evidently, there are limited conceptual and empirical studies that link the relationship of these two variables (ICT and marketing performance) together within the hospitality industry, especially in developing countries like Jordan.

Therefore, the fundamental problem driving this research is the imperative need to understand the relationship between the usage of ICT by Jordanian hotels and the marketing performance of these establishments. Thus, the purpose of this research is to investigate the relationship between ICT and marketing performance. This study attempts to conduct full-scale research in order to answer the following main question:

"What is the relationship between the use of ICT systems and the marketing performance of Jordanian upscale hotels?"

1.6 Research Aims and Objectives

As demonstrated by a review of the literature surrounding ICT and MPM in the hospitality industry, especially in Jordan, there are limited conceptual and empirical studies within this area. Thus, there is a need for extensive research that thoroughly assesses how ICT affects the marketing performance of Jordanian hotels. Therefore, this study has three aims:

1. Analyse the extent of ICT usage in Jordanian hotels.
2. Assess the level of marketing performance in Jordanian hotels.
3. Investigate the relationship between ICT usage and the marketing performance of Jordanian hotels.

Consequently, the following objectives will enable the aims to be achieved:

1. To establish the research nomenclatures and boundaries.
2. To examine the broad literature on the topic of ICT and MPM in the hospitality industry, as well as specifically in the Jordanian hospitality context.
3. To create a research framework for data collection and analysis, depending on the appropriate models for measuring ICT capabilities combined with MPM for hospitality providers.
4. To construct a methodology for investigating the relationship between ICT usage and the marketing performance of Jordanian hotels.
5. To identify the views of Jordanian hotel stakeholders on ICT usage and marketing effectiveness criteria.
6. To detect the main trends in the relationship between ICT usage and marketing performance in Jordanian hotels depending on the primary data analysis.

1.7 The Structure of the Thesis

This thesis involved an analysis of a quantitative questionnaire survey, designed to investigate the relationship between ICT and marketing performance in Jordanian hotels. This study focused on three, four and five star hotels located in the whole country of Jordan. Hotels in Amman, Petra, Dead Sea and Aqaba were surveyed. The total population for this study was 112 hotels including 28 five-star, 27 four-star and 57 three-star hotels (JHA 2012). The method of choosing these hotels is discussed in detail in Chapter Five (refer to Section 5.6). A senior manager, for example the hotel manager, marketing director or owner (who should also be a decision maker in relation to the hotel's marketing activities), was the key respondent in each case.

This thesis is divided into eight chapters. 'Chapter One' has described the general background to the whole thesis. This chapter consists of the relevance and of the research; the research problem statements; and the aims and the objectives of the research.

Chapter Two provides the reader with background information about Jordan; the country in which this research is conducted. Relevant background analysis surrounding Jordan's economy, tourism and hotel establishments is outlined in this chapter.

Chapter Three reviews the literature of ICT issues relating to marketing performance within the hospitality industry. It begins with a general overview of marketing within the hospitality literature. Previous studies about the effect of ICT on the hospitality industry are presented. This chapter also presents the impact of ICT on marketing performance. A discussion of the factors affecting ICT adoption and marketing performance for hotel establishments is also presented in this chapter. At the end of the chapter, the main themes and gaps in the literature are considered to develop the research framework in the next chapter.

Chapter Four introduces the theoretical framework and hypotheses development for this research depending in the literature review. This chapter is to address the third objective of this research (i.e. to create a research framework for data collection and analysis). This objective can be achieved depending on the appropriate models for measuring ICT capabilities combined with the appropriate marketing metrics for hospitality providers. Therefore, this chapter focuses on a literature review of the developments in measuring marketing performance. This includes certain benchmarks and approaches for ICT and marketing performance. This chapter supports the research instrument by developing research objectives, methodology, items measured and scales for both ICT and the marketing performance.

Chapter Five provides a discussion on the research methodology and methods. It begins with addressing methodological issues, including both the ontology and the epistemology. It also presents the research methods, including details on the research strategy. Research instrument and the pilot study along with tests on reliability and validity are also addressed in this chapter. Finally, data collection procedures and the relevant data analysis techniques as well as the ethical considerations of the research are explained.

Chapter Six illustrates all the findings and analysis of the data collected. The profiles of respondents are presented along with the findings relating to the ICT uptake, marketing performance and the characteristics of upscale hotels in Jordan. This includes an analysis of the impact of different organisational and demographic variables over ICT uptake and marketing-related measurements; the correlation between ICT usage and marketing-related measurements; and regression analysis in order to estimate the relationships among ICT and marketing performance variables.

Chapter Seven includes the discussion of the results from research. It links both the research questions and the current knowledge together. This chapter highlights how the results from this research reflects, differs from and extends the existing knowledge of ICT and marketing performance in the hospitality industry.

Chapter Eight includes conclusions and recommendations of this research. It illustrates the conclusions from this study and discusses whether the framework fits the Jordanian hotel industry. Recommendations presented and discussed are related to how to improve marketing performance through ICT. Finally, research limitation and directions for further research are proposed.

Chapter 2: Understanding the Hospitality Industry in Jordan

2.1 Introduction

Last chapter has described the general background to the whole thesis to address the first objective of this research (i.e. to establish the research nomenclatures and boundaries) by positioning the reader in the research area showing its importance. The last chapter consists of the relevance of the research, the research problem, aims and objectives.

Along with the first chapter, this chapter is also intended to address the first objective of this research. This chapter provides the reader with the background of the country in which this research is conducted. This chapter sets the context of the thesis by deliberating the "environment" in terms of marketing, ICT infrastructure and destination infrastructure in Jordan. The roles of hospitality in the Jordanian economy and the distribution of upscale hotels across Jordan are considered in detail.

Therefore, this chapter begins with a short review of the Hashemite Kingdom of Jordan; the geography, climate, demography and religion (Section 2.2). Then, it reviews Jordan economy and ICT environment in Jordanian economy (Section 2.3). In Section (2.4), the tourism and destination infrastructure in Jordan is presented. Section (2.5) provides a discussion of the main statistics concerning the hospitality industries in Jordan. Finally, a brief review of the population of the study (i.e. the upscale hotels in Jordan) is also presented in the last section (Section 2.6).

2.2 Background about Jordan

Jordan is a small country in the Middle-East region as a part of the Fertile Crescent with 45,495 square miles in size (88,780 km2). As Figure 1.2 shows, Jordan borders Saudi Arabia in the south, Syria in the north, Iraq and Saudi Arabia in the east and the West Bank and Israel in the west. Jordan's only port is at Aqaba on the Red Sea. About 78% of the approximately 6.5 million Jordanian citizens are urban located around the main cities such as the capital city Amman (Al-Haj and Som 2009; Abu Al Haija 2011; Jordan Department of Statistics 2013). The official religion in Jordan is Islam, with religion a much more significant cultural issue than in the West (Twaissi 2008). The demographics of Jordan expose that approximately 90% of Jordanians are 'Sunni Muslims' while 2% are 'Shia

Muslims'. Christians make up 6% of Jordan's population, 2% are varying among Greek Orthodox, Coptics, Catholics, and other (Greenway and Simonis 2000; Twaissi 2008).

Figure 2.1 Jordan Map

Source: Free World Maps (2014)

Jordan has a combination of Mediterranean and dry desert climates (Twaissi 2008). The west and north of Jordan is arable land and forests with typical Mediterranean climates. However, most of the country area is desert, and nearly half of Jordan's total area is a part of the Arabian Desert. In general, the country weather is warm and dry in the summers while it becomes mild and wet in the winters. On average, the temperatures in Jordan vary from 12 to 25 C. Yet, temperatures reach the 40s in desert areas in summertime. The annual rainfall averages range from 50 mm in the desert to 800 mm in the northern hills, some of which falls as snow.

Food and Agriculture Organisation of the United Nations (FAO 2006) reported that Jordan may be divided into four physiographic regions, each with a distinctive climate. The first region is the Jordan Rift Valley (5.5 % of the country area), which is located along the entire length of Jordan forming the western border of the country. The Rift Valley plunges to over 1,312 feet (417 meters) below sea level at the Dead Sea, becoming the lowest point on earth, and stretches to a minimum width of 9.3 miles (15 km). The Rift Valley encompasses the Jordan Valley, Wadi Araba, Aqaba and the Dead Sea. The Rift Valley is rich in water resources, including thermal mineral water (Twaissi 2008). The Rift Valley ends in the south at Aqaba, a tropical resort surrounded by mountains. Aqaba enjoys a sunny warm climate during the year and is a tourist destination sporting some of the world's most remarkable underwater life (Layyous 2014).

The second region is the 'highlands' which contains hilly and mountainous areas located through Jordan from north to south, to the east of the Jordan Rift Valley (5.5 % of the country area). Many riverbeds and valleys cross the highlands and eventually run into the Jordan River, the Dead Sea or the Rift Valley (Twaissi 2008). The highlands are by no means identical. Their altitude varies from 1,969 – 5,249 feet (600 to 1,600 metres) above sea level. The climate, although generally cool and wet, also varies from one area to another. It is in the highlands that the major remains of old civilisations are established in the cities of Petra, Jerash, Philadelphia (known today as Amman), Gadara (known today as Umm Qais), Madaba and Al-Karak (Twaissi 2008).

The third region is the plains which extend from north to south along the western borders of the desert region. The plains area is around 10,000 km2 (11% of the country area). The fourth region is the 'Al-Badiah' which is the desert area in the east of Jordan. It is an extension of the Arabian Desert, and forms nearly 78% of the Jordan area. It is not a real sandy desert; there is low rainfall and small plants survive during winter and spring (Twaissi 2008).

2.3 Jordan Economy

Jordan's economy is one of the smallest in the Middle East (CIA 2014) affected by insufficient water supplies and heavy reliance on oil imports for energy (International Monetary Fund, 2013). These barriers lead to deficiency of agricultural and industrial products exportation. As a result, Jordan's economy depends to a significant extent on foreign loans, international aid, and remittances from expatriate workers. Despite this, the

World Bank (2014) categorised Jordan as an “Upper middle income country". The GDP Growth for Jordan, as reported by the Economy Watch (2014), was 3.25% for 2013. Jordan economy faces three primary problems; poverty, unemployment, and recently, inflation (Al-Ababneh 2011).

Furthermore, Jordan’s economy suffered from large negative external shocks, e.g. the Arab-Israeli conflict 1948-1973, Gulf War 1990, Iraq War 2003 and Arab Spring 2011. Moreover, the migration to Jordan since the Palestinian exodus in 1948 has significantly impacted its economy (Migration Policy Institution 2010). In addition to receiving Palestinians, Jordan has also hosted forced migrants from Lebanon during the 1975–1991 Civil War and from Iraq during and after the 1991 Gulf war (International Organisation for Migration 2013) as well as Syria from 2011 until now. In 2013, the immigrants formed 40.2% of the Jordanian population (International Organisation for Migration 2013). Moreover, the increasing oil prices as well as the interruption of the Egyptian gas supply have negatively affected Jordan’s economy (International Monetary Fund 2013). According to Jordan’s minister of energy, Jordan’s losses in 2013 reached $5.2 billion due to interruption of the Egyptian gas supply which Jordan relied upon to generate electricity (Middle East Monitor 2013). Table 2.1 presents the Key economic indicators of the Jordanian economy between 2009 and 2013.

Table 2.1 The Key Indicators of the Jordanian Economy 2009-2013

Indicator	2009	2011	2013	2009/2013 (%)
Population (In Million)	5.915	6.181	6.482**	9.5%
Unemployment rate (%)	12.9	12.9	12.2	-0.7%
Average $US exchange rate per JD	1.41	1.41	1.41	0%
Gross Domestic Product GDP in Current Prices *	23,8	28,9	34,1	43%
Real GDP growth rate (%)	2.3%	2.6%	2.8%	0.5%
Value of Oil Imports *	2.5	5.5	5.9	136%
Current Account Balance*	-0.78	-3.48	-3.42	-338%
Inflation rate (%)	-0.67	4.41	5.89	6.6%

* Number in US$ Billion ** Number estimated in July 2013.

Source: Central Bank of Jordan (2009- 2013) and Jordan Department of Statistics (2009-2013)

However, Jordanian policymakers aim to build a dynamic, knowledge-based economy by making use of the demographic opportunity of a well-educated, young population (Smadi and Tsipouri 2011). Henceforth, Jordan's economy relies upon its skilled workforce alongside strong governmental support to create a competitive advantage in sectors like tourism and ICT.

On the subject of the ICT infrastructure, Jordan is a medium-developed country, and according to the data on competitiveness in Travel and Tourism Competitiveness Index (World Economic Forum 2015), of 141 countries Jordan ranks 39th in the extent of ICT usage for business-to-business transactions; 42nd in the extent of Internet usage for business-to-consumer transactions; 76th in the number of Internet users; and 32nd in mobile telephone subscribers.

The mobile cellular subscriptions rate (per 100 people) is high in Jordan, with Jordan, UK, and USA being at 142%, 125% and 96% respectively in 2013 (The World Bank 2015). The term 'mobile cellular subscriptions rate' labels the number of active mobile phone numbers as a percentage to the total population in a country (Ishii 2004). This figure of 142% may indicate that Jordan is doing well in terms of ICT development to support technology-enabled businesses.

Although Jordan's percentage is high in comparison to Canada at 81% (a developed country) and many more advanced developing countries like China and India at 89% and 71% respectively (The World Bank 2015), Jordan's ICT readiness index is not very advanced. The country's ranking is 65th out of 141 ranked countries in the world, with an index of 4.2/7 (World Economic Forum 2015). The ICT readiness index seeks to ascertain how developed the ICT infrastructure in a country as well as how extensively it is used by individuals and businesses in the country (World Economic Forum 2015). In fact, Jordan's ICT readiness index has decreased over 2013 figure, which was 47th out of 144 countries. This signifies a decline from 60th in the global standing to 77th in Travel and Tourism Competitiveness Index. Table 2.2 offers further details regarding the ranking of top-ranked developed countries and a few developing countries especially those in the Middle-East (World Economic Forum 2013-2015).

Since Jordan's ICT readiness is to some degree low, it is advised in this research that rather than taking Rogers's (1995) diffusion of innovation approach from innovators to laggards (see Section 4.4, p.108), it is better that we use Sigala (2003) and Reino's (2009) elements for measuring the level of ICT adoption in hotels and therefore, addressing the first research aim. These elements comprise three levels of ICT adoption, namely, availability, integration,

and intensity of ICT solutions. In measuring ICT adoption in Jordanian hotels, this research proposed the use of the three levels of ICT adoption as suggested by Sigala (2003) as antecedents to established performance measures. Reino's (2009) research framework was adapted with minor adjustments to develop the research model for this study.

Table 2.2 ICT Readiness Index (2013-2015)

2015 rank (out of 141)	Country	Score	2013 rank (out of 144)
1	Finland	6.4	1
2	Hong Kong	6.2	14
3	Denmark	6.2	8
6	United Kingdom	6.1	7
14	United States	5.8	9
15	Bahrain	5.8	29
16	United Arab Emirates	5.8	25
45	Oman	4.8	40
65	Jordan	4.2	47
68	Turkey	4.2	45
80	Egypt	3.8	80
100	Paraguay	3.3	104

Source: World Economic Forum 2015 (2013- 2015)

2.4 Tourism Industry in Jordan

Tourism has become a leading leisure business since the last century. Employment in the tourism industry exceeded 160 million people worldwide in 2013. Over one billion tourists travelled the world spending $1.4 trillion (around £837 billion) (UNWTO 2014). The sector continues to expand and its future is very bright (UNWTO 2014). This remaining performance can be credited to a number of factors including the introduction of low-cost airline service and developments in transportation; the increasing levels of disposable income; and the rise of new source markets such as China and India (Seng 2015).

Tourism has become one of the world's fastest and largest developing industries. The tourism industry is a significant part of the service sector, due to the number of people it employs and for its 'far-reaching' effects on the social and economic development of regions (Fayos-Solá 1996; Holjevac 2003; Butler 2008; Nwakanma et al. 2014). The World Tourism

Organisation (UNWTO 2014) classified visitors (domestic, inbound or outbound) as tourists or overnight visitors, if their trips include overnight stays.

Jordan as many developing countries, is engaged in tourism as an economic driver that generates income from foreign exchange in an effort to address their balance of payment problems. In fact, Jordan's Vision 2020 seeks to realise an inclusive, world-class Jordanian tourism industry that is a major contributor to domestic economic development and helps distribute income and opportunities across society by making changes in public investment policy and in marketing Jordan as a destination within a safe, secure, and sustainable managed environment (USAID 2006). The major thrust by most stakeholders in the tourism industry in Jordan is strengthening the brand of Jordan as a distinctive, world class destination in key source markets (MOTA 2011b). Furthermore, many interest groups and stakeholders are hoping for the country to improve the competitive national environment by offer scholarships and management training in tourism and improve access of small and medium size establishments to financing (Fischer et al. 2009).

The tourism industry plays a significant part in the Jordanian economy, and it is recognised as one of the key contributors to the growth of employment and foreign exchange reserves (Al-Ababneh 2011). Tourism is considered as a prominent industry and a significant wealth generator for both local and global levels (Seng 2015). In 2012, Jordan ranked fourth in the Middle East for the number of tourists it received (after Saudi Arabia, Egypt and the United Arab Emirates) and fifth by tourism income (after the United Arab Emirates, Egypt, Saudi Arabia and Lebanon) (UNWTO 2014). Table 2.3 below presents the key indicators of Jordanian tourism between 2009 and 2013. For instance, in 2013, more than eight million tourists visited Jordan from different countries providing $3.4 billion in tourism revenues (MOAT 2013). Thus, tourism incomes formed 14% of Jordanian GDP. Moreover, tourism is the second biggest private sector employer in Jordan and 36% of this workforce is in hotels MOAT (2013).

The major markets being targeted for visitor arrivals to Jordan are Arab countries, Europe, Russia, USA, India and Indonesia (MOTA 2015). Table 2.4 shows overnight tourist and same day visitors to Jordan by region in 2014 and the highest country in every region.

Table 2.3 The Key Indicators of the Jordanian Tourism 2009-2013

Indicator	2009	2011	2013	2009/2013 (%)
Total number of visitors (,000)	7,085	6,813	5,389	-25%
Tourists (overnight visitors) (,000)	3,789	3.960	3,945	4%
Same day visitors	3,296	2.853	1,444	-65%
Number of package tour tourists	474,683	419,571	432,878	-9%
Average length of stay (day)	4.8	4.3	4.2	-5%
No. of hotels (Total)	485	490	519	7%
Number of rooms in hotels	23,113	24,401	26,370	14%
Number of beds in hotels	44,371	46,860	50,142	13%
Tourism income (million JD)	2,067	2,431	2,923	41%
Number of Employees (Total)	40,092	41,879	48,151	20%
Number of Employees in Hotels	14,690	15,174	18,809	28%

Source: MOTA (2009- 2013)

Table 2.4 Same Day and Overnight Visitors to Jordan by Region in 2014

Region	Same Day Visitors	Tourist Overnight	Total	Percentage
Total Arab (e.g. Saudi Arabia)	1,141	1,791	2,932	55.0%
Jordanians Residing Abroad	25	1,203	1,228	23.1%
Total Europe (e.g. UK)	109	533	642	12.1%
Total Asia (e.g. India)	34	246	280	5.3%
Total America (e.g. USA)	26	196	222	4.2%
Total Africa (e.g. South Africa)	1	22	23	0.4%
Total	1,337	3,990	5,327	100%

Source: MOTA (2015)

Regarding the demographics of arrivals (for the period 2010-2011), about 41% of arrivals were less than 34 years old, 32% between 35-44 years old, 19% between 45-54 years old, and 8% of arrivals were 55 years old or more. The male arrivals were 81% while female arrivals were only 19% (Jordan Department of Statistics 2012).

According to Bethapudi (2013) the purposes of tourist arrival globally are: (i) 51% for leisure, holiday and recreation; (ii) 27% for visiting relatives and friends, religion and health; (iii) 15% for business; and (iv) 7% for other purposes. However, for Jordan, the purposes of international arrivals in the period 2010-2011 were (i) 69% for visiting relatives and friends

and for religion and health tourism; (ii) 13% for business purposes; (iii) 15% for leisure, holiday and recreation; and (iv) 3% for other purposes (Jordan Department of Statistics 2012).

In the travel and hotel business, around 57% of all travel reservations are made on the Internet (Internet Travel Hotel Booking Statistics 2015). However, Internet payment is underdeveloped and tourists are using online intermediaries, e-mail contacts, or call centres, which are all available through Webpages. Some of the main market segments of Jordan (e.g. USA and UK) use the Internet as a source of tourism information.

The Jordanian tourism industry relies heavily upon the quality of its natural and historical heritage (Al- Haj and Som 2009). For instance, there are four sites in Jordan recognised by UNESCO as world heritage sites; both 'Petra' and 'Quseir Amra' in 1985, 'Um er-Rasas' (i.e. Kastrom Mefa'a) in 2004 and 'Wadi Rum Protected Area' in 2011 (UNESCO 2014). Jordan is also considered as one of the main health tourist destinations (medical and curative) in the Middle East (Harahsheh, 2002; Medical Tourism Corporation, 2014). Moreover, places such as; Mount Nebo, the Baptism Site (i.e. Al-Maghtas) and some of Islamic shrines; have a significant importance for the religious tourism sector in Jordan (Bader 2012; MOTA 2013).

Products such as hotels, attractions, culture and food are the main draw to the country (Fischer et al. 2009). Some of the sectors involved in the tourism industry are travel trade, adventure tourism, accommodation, food and beverage, attractions, transportation, tourism services, and conferences and events (Seng 2015). The core marketing slogans for Jordan tourism are "a non-stop thrill ride", "delve into an antique land", "an extraordinary world of nature treasures", "indulge in unrivalled luxury and recreation", "a land of religious harmony", and "civilisation met here, so can you" (JTB 2015), which has a strong emphasis on recreation, adventure and leisure.

Moreover, Jordanian tourism depends on political stability, comfortable temperature through the year and the openness of its people to tourism and to foreigners (Abu Al Haija 2011). Therefore, Jordan tourism showed remarkable resilience and rapid recovery following the 2005 hotel attacks in Amman (Rosenberg and Choufany 2009) and during the global economic crisis in 2009 (MOTA 2010). Jordanian tourism has developed a global reputation as destination brand. According to Harahsheh (2009), there is a strong awareness of Jordan as destination brand among British and Swedish travellers. However, the main challenges that face the Jordan tourism industry are shortage of skilful employees in communication, customer care and marketing as well as the poor coordination across the cluster (Fischer et

al. 2009). However, although regional tourism is rising, tourism in Jordan is slow relative to its peers (Fischer et al. 2009).

There are four central destinations in Jordan, namely; Amman, Petra, Dead Sea and Aqaba. Amman is the capital city of the country and the administrative, industrial and commercial centre of Jordan. According to Global Hospitality Services (Rosenberg and Choufany 2009), medical tourism witnessed exceptional development in Amman in the past few years. The second region is Petra which was recently named as one of the 'New Seven Wonders of the World'. The city is concealed from the outside world and is composed of several temples and tombs cut from the face of coloured sandstone rocks. Petra is considered Jordan's most-visited tourist attraction (MOTA 2014).

The third region is the Dead Sea which is the lowest spot on earth. It considered as the saltiest and most mineral-laden body of water in the world. The Dead Sea is well-known as a source of healing, and has become a admired centre for rehabilitation, health and beauty treatments. Lastly, Jordan's only coastal city 'Aqaba' is around 300 km south of Amman and is strategically situated at the crossroads of three countries (i.e. Egypt, Saudi Arabia and Israel). Aqaba is famous for its warm water and rich marine life. Thus, it stands out as a diving resort and as Jordan's destination for the sun and sand tourism.

The marketing and promotion strategy for tourism in Jordan between 2004 and 2010 seemed to be effective by increasing visitor numbers by 48%, from just over 5.5 million visitors in 2004 to more than 8.2 million by 2010. As a result, overall receipts increased from JD943 million in 2004 to more than JD2.4 billion in 2010, which means a growth of 257%. For the same period the receipts from domestic tourists increased substantially by 34%, as did receipts generated from Gulf countries (43%), other Arab countries (38%) and foreign visitors (58%). To build on these results, the marketing and promotion efforts in Jordan National Tourism Strategy 2011-2015 focus on growing domestic and international tourism revenue and numbers as well as extending visitor length of stay through improved international and domestic marketing (MOTA 2011b). This strategy identified twelve market segments which present significant opportunities for Jordan. These markets range from religious tourism and cultural heritage to family holidays, health and wellness, meetings, adventure and sports. To reach these target markets, the strategic aim for promotion and marketing was to "increase arrivals of high-yielding tourists from key current and emerging markets and grow the domestic tourism market".

2.5 Hospitality Industry in Jordan

This section presents a brief discussion of the main statistics concerning hotels in Jordan. Table 2.5 summarises the key indicators for the Jordanian hospitality industry during the period 2009 -2013. Around five million nights in Jordanian hospitality establishments were occupied during 2013, of which about 76% were by foreign guests. In 2013, the total occupancy rate increased to 50% comparing to 46% in 2009. In the same year (2013), guests reported positive feedback on Jordanian hotels in online forums. For instance, the overall score for Jordanian hotels was 4.2 out of 5 biased on 'TripAdvisor Travellers' Score' (2013) which provides a review of hotels based on the feedback from the community of 'TripAdvisor' travellers. TripAdvisor is the most popular platform for hotel reviews (e.g. Litvin et al. 2008; Aureli et al. 2013; Boon et al. 2013; De Ascaniis et al. 2015).

Table 2.5 The Key Indicators of the Jordanian Hospitality Industry 2009-2013

Item	2009	2011	2013	2009/2013 (%)
No. of Arrivals*	2.330	2.241	2.435	5%
No. of Rooms Occupied*	2.867	2.766	3.056	7%
No. of Nights Occupied*	4.835	4.638	4.971	3%
Occupancy Rate	45.8%	41.1%	43.8%	-2%
Nights spent by resident*	0.876	0.953	1.204	37%
Nights spent by non-resident*	3.959	3.685	3.766	-5%

***Numbers in Millions** **Source:** MOTA (2009-2013)

Jordan has a variety of hotels ranging from international chains to small apartments. Thus, the hotel industry in Jordan is classified into three groups as shown in Table 2.6. The first group is the classified hotels which represent large hotels. This includes local hotels and international chain brands (e.g. Movenpick, Intercontinental, Four Seasons, Holiday Inn, Marriott). The tourism statistics indicate that in 2013 there were 229 classified hotels, with 31 five-star hotels, 29 four-star hotels, 55 three-star hotels, 58 two-star hotels, and 56 one star hotels. The total number of rooms in these hotels was 18,830, with a total of 34,720 beds which made up more than 69% of the total number of available beds in the country. The total number of employees in the hotel industry in 2013 was 18,307, of which about 86% were working in the classified hotels (15,695).

The second group is the apartments and the suites which are classified as a mid-size family business. There were 114 apartments and 31 suites in 2013. These apartments and suites

included 4,999 rooms and 9,497 beds. Around 1,042 employees were working in the apartments sector which accounted for just 6% of the total Jordanian hotel workforce.

The third group is the unclassified hotels which represents an important sector for internal tourism in the hotel industry. There were 123 unclassified hotels, two hostels, one motel, and 19 campsites. The total number of rooms and beds in this sector are 2,508, and 5,709 respectively. The total number of workers in unclassified accommodation establishments is 463, which consists of 3% of the total Jordanian hotel workforce.

The hospitality industry is one of the most important sectors in Jordan for employment. According to Chambers (2009) hospitality is an industry that functions to create careers and employments. In 2013 the total number of employees in the hospitality industry represented 39% of the total direct employment in the tourism sector as seen in Table 2.3 and 3% of total Jordanian employment (Jordan Department of Statistics 2013).

Table 2.6 Number of Hotels, Apartments & Unclassified Hotels in Jordan 2013

Hospitality Establishments	No. of Establishments	No. of Rooms	No. of Beds	No. of Employees
Classified Hotels	**229**	**18,830**	**34,720**	**15,695**
Five Stars	31	7,980	13,372	9,492
Four Stars	29	3,735	6,741	3,234
Three Stars	55	3,643	7,057	1,985
Two Stars	58	2,175	4,767	752
One Stars	56	1,297	2,783	259
Apartments & Suites	**145**	**4,999**	**9,497**	**1,042**
Apartments	114	3,711	7,156	554
Suites	31	1,288	2,341	488
Unclassified Hotels	**145**	**2,508**	**5,709**	**463**
Unclassified Hotels	123	1,643	3,800	296
Hostel	2	35	81	33
Motel	1	11	18	2
Campsites	19	852	1,836	144
Total	**519**	**26,370**	**50,142**	**18,307**

Source: MOTA (2013)

As Table 2.7 shows, the total number of employees in the hospitality industry in 2013 was 18,307, of which, about 96 % work in just four locations: 59% in Amman, 15% in Aqaba, 16% in the Dead Sea, and 7% in Petra. In 2013, Jordanian nationals made up the majority of

the hospitality industry workforce (89%) against to 12% for non-Jordanians (see Table 2.8). As Table 2.8 shows, most employees were males 92%, while only 8% were females.

Table 2.7 Employment in Jordanian Hotels by Location 2013

Location	No. of Hotels Employees	Share of Total Employees in Hotels
Amman	10,891	59%
Petra	1,164	6%
Dead Sea	2,861	16%
Aqaba	2,735	15%
Other Areas	656	4%
Total	**18,307**	**100%**

Source: MOTA (2013)

Table 2.8 Employment in Jordanian Hotels by Nationality and Gender 2013

	No. of Hotels Employees	Share of Total Employees in Hotels
Nationality		
Jordanian	16,226	89%
Non Jordanian	2,081	11%
Gender		
Male	16,838	92%
Female	1,469	8%
Total	**18,307**	**100%**

Source: MOTA (2013)

The tourism statistics, as seen in Table 2.9, indicated that 4,912 new jobs were created in the hospitality industry (including hotels and restaurants) with 2,288 employees leaving their jobs. This means that this sector created 2,624 new jobs in 2012. The creation of new jobs in this sector has increased by 17% in 2012 compared to 2009.

Table 2.9 Job Creation in the Hospitality Sector (Hotels and Restaurants) 2009-2012

Item	2009	2012	2009/2012
New Employments	5,912	4,912	-17%
Jobs Lost	3,665	2,288	-38%
Net Job Creation	**2,247**	**2,624**	**17%**

Source: Jordan Department of Statistics (2009-2013)

Jordan has many institutions that support the tourism and hospitality clusters. The most influential one are the Ministry of Tourism and Antiquities (MOTA) which established in 1988, and the Jordan Tourism Board (JTB) which established in 1998 (Fischer et al. 2009). Since 2004, the Ministry of Tourism and Antiquities (MOTA) has been leading a national tourism strategy, which targets high-end tourists and promotes adventure tourism, eco-tourism, leisure and wellness tourism, health tourism, volunteer tourism and religious tourism (Fischer et al. 2009).

Another influential institution that supports the hospitality clusters is the Jordan Hotel Association (JHA). JHA is a non-profit association representing the hotel industry throughout Jordan, was established in 1969 to promote cooperation among hoteliers. The JHA assists members to meet international standards. It is a member of the Arab Hotel and Tourism Association (AHTA), and the International Hotel and Restaurant Association (IH&RA). JHA represents more than 512 classified and unclassified hotels throughout Jordan (JHA 2014).

2.6 The Context of the Study

As outlined above, tourism is often the main source of foreign exchange earnings without exporting any national resources or wealth (Seng 2015). Upscale hotels stand as the core sector of the Jordanian hotel industry. As shown in Table 2.6; there were 31 five-star hotels, 29 four-star hotels and 55 three-star hotels in Jordan in 2013. These hotels are predominantly international chains hotels; however some independent ones are included in this category. These hotels represent 50% of the total number of classified hotels in Jordan with a capacity of 15,358 rooms and 27,170 beds, representing 82% and 78% of the total number of rooms and the total number beds in the hotel industry respectively. Regarding the employment, these hotels employed around 14,700 employees in 2013 which represent 80% of the total Jordanian hotel employees.

This study chose the upscale hotels in Jordan since these hotels retain the majority of the Jordanian hotel capacity and workforce. In addition, these hotels command the largest share of the total hotel income due to their superior capabilities and their unique sites. According to the statistics from MOTA (2013), these hotels are mainly located in the four central destinations in Jordan outlined above (i.e. Amman, Petra, Dead Sea, and Aqaba).

Furthermore, upscale hotels in general are exposed to several problems related to human resources (e.g. the lack of qualified workforce, the high rate of employment turnover, and

employee stress). These hotels are also exposed to some challenges related to their core operation processes (e.g. high competition, seasonality, and high customers' expectations). These challenges and problems may decrease upscale hotels overall performance in general and their marketing performance in particular. According to Sigala (2005), the hotel industry is facing increased competition, globalisation, greater customer turnover, rising customer expectations and growing customer acquisition costs, which mean that competitiveness and performance in hotels are significantly dependent on their ability to satisfy customers effectively and efficiently. Therefore, these challenges and problems need more attention from professionals as well as researchers in order to recommend some innovative solutions including the use of modern ICT solutions. Thus, upscale Jordanian hotels represent an ideal context for an investigation into the impact of ICT on marketing performance.

The current national strategic development goal of Jordan has included the tourism sector as one of the main driving economics sources. Seeing the significant influence of tourism industry on the national economic growth with the author's desire to recommend solutions to rectify the adverse position in ICT of Jordan's tourism, this research focuses on the improvement and sustainability of hospitality marketing in Jordan with the enrichment of ICT solation.

Jordan's marketing thrust may target the recreation and leisure visitors more than professional and business visitors who might be want to mix pleasure with business at Jordanian hotels. Due to the fact that hotels can reach the targeted guests across the globe with a single click on a computer icon over the internet, Web technologies, and smart mobiles (Bethapudi 2013); more emphasise should go to this business and professional visitors. Moreover, ICT facilitates potential guests to access the hotel services, products and information at any time from anywhere (Bethapudi 2013). It is a widely held view by hoteliers hat ICT adoption is a main influence in encouraging greater hotel performance (Siguaw et al. 2000). Seeing Jordan sits in the low rank in ICT readiness and the awareness of the command of the essential ICT role in all functions, the research attempts to look into the availability, connectivity and the usage of ICT applications in hospitality sector in Jordan.

There is an appeal in the literature (see next chapter) for more research to assess the link between ICT adoption and hotel performance, especially in developing countries (Sirirak et al. 2011; Mihalič and Buhalis 2013). Hence, this research was proposed to answer the research question: "What is the relationship between the use of ICT systems and the marketing performance of Jordanian upscale hotels?" It is hoped this research will encourage

future research in developing tourism marketing in the Jordanian context by using ICT solution. This chapter presents a background of the country in which this research is conducted. Next chapter examine the broad literature on the topic of ICT and marketing performance in the hospitality industry.

Chapter 3: Literature Review

3.1 Introduction

As outlined above; 1) tourism is often the main source of foreign exchange earnings without exporting any national resources or wealth; 2) since the hospitality sector is a central part of Jordan's tourism industry, the marketing performance of hotels has a significant impact on Jordan's overall attractiveness as a tourist destination; and 3) the hospitality industry is becoming highly competitive, thus, it is necessary for hotels to employ ICT solutions to enhance their marketing performance. Therefore, this research is intended to assess the impact of ICT adoption on Jordanian hotel marketing performance.

This chapter introduces the literature review for this research. This chapter is intended to address the second objective of this research (i.e. to examine the broad literature on the topic of ICT and marketing performance in the hospitality industry). This objective can be achieved by conducting a comprehensive review of the literature on the area of interest. The researcher adopted a bottom-up approach (from latest research paper to older ones). This chapter supports the research objectives, methodology, and results presented in data analysis.

Thus, this chapter is structured in seven parts. It begins with a general overview of marketing within the hospitality literature (Section 3.2). Then, the second part (Section 3.3) provides a general overview of ICT solutions for the hospitality industry. The next section (Section 3.4) presents the impact of ICT on business performance in the hospitality industry in general. The fourth part of this chapter (Section 3.5) illustrates the intersection of ICT and marketing performance within the hospitality industry. A discussion of the factors determining ICT and marketing performance in hotels is presented in Section 3.6. The main themes and gaps in the literature are considered in Section 3.7 and Section 3.8.

3.2 Marketing Performance in Hospitality Firms

At the fundamental level, marketing is a process of promoting, selling, and distributing a product or service. It focuses on realising what customers need and want and then delivering it at a realistic cost, whilst achieving a reasonable profit. However, marketers attempt to emphasise the uniqueness and quality of their product or service over the offerings of their rivals in as many areas as possible; in other words selling uniqueness. In tourism,

destinations need to differentiate themselves from one another to sustain their development (Baker and Cameron 2008). An empirical study by Wu et al. (2010) affirmed this result for hotel establishments.

Therefore, the field of marketing has recently witnessed an increased emphasis on tourism studies. According to Li and Petrick (2008), tourism marketing has become an essential discipline for tourism studies. Upon reviewing tourism journal publications, O'Leary et al. (2004, cited in Li and Petrick 2008, p.235) reported that tourism marketing is by far the most-popular topic.

This emphasis makes sense since; marketing and promotion are critical in the success of any hospitality and tourism development (Williams 2006). Marketing also is a critical element for developing and implementing competitive strategies (Day 1999). In essence, the right marketing activities are ones which promote a product or service that satisfies consumers' needs whilst simultaneously providing an income to the organisation and country which have provided the service.

However, marketing within the hospitality sector is different to many other sectors. Based on a review for marketing research in Cornell Hospitality Quarterly for the period 1960-2010, Dev et al. (2010) emphasised the continual increase in the complexity of the marketing subjects for the hospitality industry. Williams (2006) argued that the marketing of tourism and hospitality products is becoming more complex since it is related to conveying an image of a place in order to sell an experience of that place through 'interacting its image' to the consumers' lifestyle. It is also complicated due to the emotional aspect of a consumer's decision-making when purchasing leisure products (Scott et al. 2009). This is in addition to the various interests of the stakeholders involved (Machlouzarides 2010).

The core outputs for many hospitality organisations are mainly performances or experiences (i.e. services). These services have a number of unique characteristics that distinguish them from goods, and this has implications for the method by which they are marketed. Sheth and Sharma (2001) described services as intangible and perishable. Palmer (2014, pp.7-6) outlined the unique characteristic of services as intangibility, inseparability, variability, perishability and inability to own a service.

Regarding the first characteristic (i.e. the intangibility); this concept means that services cannot be perceived or conceptualised by the five senses before purchase; therefore, they cannot be directly examined (Litvin et al. 2008). In hotels, guests cannot try out the comfort of a hotel room until they purchase it. In this instance, purchase decisions are made on the basis of projected and perceived images, rather than prior experience (Williams 2006).

However, the intangible process has some characteristics that can be used to define services, for example; reliability, personal care, attractiveness of the staff and their friendliness. Thus, once a service has been purchased, these characteristics can be then verified. Intangibility increases the level of uncertainty for the consumer who wants to choose between competing services.

Unlike the tangible goods whose production and consumption are processes separated in both time and space, service production and consumption are normally simultaneous (i.e. inseparable) and involve direct exchanges between both providers and consumers. Consequently, both providers and customers become a part of the service experience because they must be present simultaneously for the transaction to occur. Therefore, marketing services should be based on the assumption that consuming a service is consuming a process and marketing efforts should be included in this process in many different ways.

Moreover, the quality of services is likely to differ (i.e. lack of consistency) because of the variability of their providers, locations and timing. Variability affects customers not just in terms of outcome but also in term of processes of production. In order to improve quality consistency, hospitality firms are adjusting their hiring and training procedures, standardising the service-performance process and periodically monitoring the level of customer satisfaction.

Services are also perishable (Sheth and Sharma 2001). The 'perishability' denotes that the service is not long-lasting; firms cannot stock services as inventory. This simply means that if services are not sold today, they can never be sold. Therefore, hospitality providers must pay a great attention to the management of supply and demand by scheduling service production to follow the array of peaks and troughs in demand as far as possible (Palmer 2014, p.12).

Alongside the other features of tourism outcomes such as the notions of intangibility and perishability, Mill and Morrison (2006, pp.168-1) have listed seven characteristics that make tourism and hospitality marketing unique. These include customers' shorter exposure to services, more emotional buying appeals, a greater importance on managing evidence, a greater emphasis on stature and imagery, more variety and types of distribution channels, easier copying of services, and more focus on off-peak advertising.

Furthermore, there is a stronger dependence on complementary organisations within the tourism and hospitality industries. These industries consist of several players, and the joint efforts of these players to communicate and coordinate their efforts can allow tourist demand to be managed in a more efficient manner (Yilmaz and Bititci 2006). This co-dependent

feature (the interdependency) of the tourism industry forces organisations in several sectors, (i.e. tour operators, transportation and hotels) to rely on each other (Evans et al. 2003, p.35). This means if one of these sectors fails to deliver a service all other sectors will be affected. Thus, the whole tourism industry operates as a huge assembly line (Li and Petrick 2008). The interdependent and inseparable nature of the tourism industry impacts the overall service quality of the product or the service that the consumers buy. Hence, different establishments in the tourism industry must work with each other as a value chain in order to provide products and services with added value to their customers (Yilmaz and Bititci 2006).

Moreover, William (2006) has distinguished marketing in hospitality (i.e. the experiential marketing) from the traditional marketing by four features. Firstly, experiential hospitality marketing focuses on experiences and lifestyles of customer. Secondly, it focuses on creating synergies between meaning, perception, consumption and brand loyalty. Thirdly, there is a debate that customers are not necessarily rational decision-makers; they may be driven by emotion as well. Finally, in order to understand consumers, it is argued that experiential marketing needs a more varied range of research methods.

Therefore, individual hoteliers must find ways to ensure their services stand out among their competitors in today's competitive environment (Zigan and Zeglat 2010; Al Khattab and Aldehayyat 2011). In comparison to other businesses, further effort and costs are required to motivate consumer groups to become loyal in the tourism sector (Emir and Kozak 2011).

In order to manage consumer demand, hospitality marketing managers have to make decisions continuously about four basic variables. These variables are widely known as the marketing mix or, collectively, as the four Ps which was originally used to describe the marketing mix in 1960 (McCarthy and Borgowicz 1981). Kotler and Bloom (1984, p.61) defined the marketing mix as ''the particular blend of controllable marketing variables that the organisation uses to achieve its goal in the target market.'' The four-Ps as outlined by Middleton et al. (2009, pp.138-3) are; (i) product formulation, which is a means of adapting the product to the changing needs of the target customer; (ii) pricing, which in practice tends to be used as a throttle to increase or slow down the volume of sales according to market conditions; (iii) promotion, which is used to increase the numbers of those in the market who are aware of the product and are favourably disposed towards buying it; and (iv) place, which determines the number of prospective customers who are able to find convenient places and ways to gain information and convert their buying intentions into purchases.

The four-P concept, however, takes the sellers' view of the market and in order to reflect the buyer's view of the market; Kotler (1999, p.96) reconfigured the 'four-P' as the 'four-C'

which are; (i) Customer value (i.e. Product), which refers to the perceived benefits from a product or a service; (ii) Cost, which is the consumer-focused equivalent to the price; (iii) Communication (i.e. Promotion), which means all forms of customer and producer dialogue, including information and two-way interactive relationship marketing; and (iv) Convenience (i.e. Place), which means- in terms of consumer- the access to the products or services they buy.

Decisions about these four controls are taken by organisations through strategic decisions on the desired future for their products or services. However, these four marketing controls tend to be adjusted and synchronised continuously according to market conditions as well as the actions of competitors. Therefore, any successful system for evaluating marketing performance should reflect these controls. Within the hospitality industry, any business needs a combination of these elements in order to be successful in selling its product on the market (Radisic et al. 2010). For example, the price of a flight or a room is continuously adjusted in the light of market intelligence. Table 3.1 presents some examples of these four controls (i.e. marketing mix) within the hospitality context.

However, the differences between goods and services rationalise the enlargement of the marketing mix for services to include people, processes, and physical evidence. Physical evidence is the evidence which indicates that service was performed (e.g. the physical facility where the service produced and/or delivered). Physical evidence reminds and assures the consumer that the service took place, either positively or negatively. The term 'People' simply refers to the employees that produced and/or delivered the service. This term mainly concerns the manners and skills of these employees. In hospitality context, all employees are marketing and salespersons on behalf of their hotels. The last element (i.e. Process) comprises all processes and systems within the organisation that affect the production and/or delivering of its services, such as job queuing or query handling.

Table 3.1 Examples of the Marketing Mix within Hotel Establishments

Marketing Mix	Examples
Product:	
Design characteristics/ packaging	Location, building size, grounds, design, room size, facilities in hotel, furnishing, décor, ambience, lightning, catering styles.
Service component	Staff numbers, uniforms, attitudes, customer responsiveness.
Branding	Marriott, Sheraton, Holiday inn, Meridien.
Image/ reputation/ position	Upmarket, downmarket.
Price:	
Regular price	Rack rates, corporate rates, privileged user rate.
Promotion price	Tour operator discount rate.
Promotion:	
Advertising	Website, social media, T.V., press, journals, radio.
Sales promotion	Holiday voucher, free amenities, larger-scale discounts to conventions that use particular airlines.
Public relations	Media relationships, speaking at conferences.
Sales force	Sales call campaigns group.
Place:	
Channels of distribution	Computerise reservation systems (CRS), other hotels in group, Internet, travel agents, tour operators, airlines.

Source: adopted from Middleton et al. (2009, p.141, fig.8.1)

3.3 ICT Solutions for the Hospitality Industry

Tourism and hospitality have become important industries on a global scale and are expected to grow continuously. The hospitality industry has been a dominant contributor in several economies in term of employment and revenue (Paryani et al. 2010; Bethapudi 2013; Nwakanma et al. 2014). It is currently the fastest growing economic sector in the world (Chevers 2015). The proof of this is the growth in the number of tourists at the international level by three times during the past two decades, and the increase of receipts from international tourism in destinations from (22) billion dollars in the 1970s to (1400) billion dollars in 2012 (UNWTO 2014).

A significant part of this success is attributed to the adoption of ICT (Richard 2013; Nwakanma et al. 2014). It is common to acknowledge that ICT has an impact in several

societies and businesses (Seng 2015). For hospitality industry, considerable investment in ICT solutions is spent in designing services/products and improving hotel operation annually (Paryani et al. 2010). For example, the Sheraton Hotel had introduced a guest satisfaction system to improve the customers' lodging experience and increase return rates (Jeong and Oh 1998).

With the growing trends in using ICT in all areas of business, ICT is gaining importance in the current era (Ryssel et al. 2004; Nwakanma et al. 2014). Nowadays, ICT has become a main source of sustainable competitive advantage and a strategic weapon that organisations rely on in light of fierce competition in the market (Nwakanma et al. 2014; Mihalič et al. 2015). In fact, some academics consider that ICT can lead to economic development of nations (Aziz et al. 2012; Kamel et al. 2009).

The previous studies in the hospitality industry have shown that there are many types of ICT applications that hotels can use in functional areas, such as finance and accounting, human resources management and sales and marketing. Hotels may apply ICT applications purely for the Front-Office, Back-Office or both and while some ICT applications may be used only by customers, employees and managers. Further, each customer segment may request and need different kinds of ICT applications. In other words, different customers have different ICT expectations and needs. For instance, business travellers may request online booking whereas leisure travellers may expect more in-room entertainment amenities.

The core services delivered by hotels can be used to categorise ICT systems (Ham et al. 2005; Sigala 2003). According to Ham et al. (2005), Hotel Information System (HIS) is the most typical ICT solution in hotel establishments. They divided HIS into four main categories as follows: (i) Front-Office ICT systems; (ii) Back-Office ICT systems; (iii) Room division ICT systems; and (iv) In-room ICT systems. These areas cover the full complement of services provided by hotels to their local and overseas guests. Front-office technologies generally revolve around the point of sale and property management system (Kim et al. 2008b). Back-office technologies include software solutions for financial reporting, inventory management, security management, menu management, green technologies, labour management and data management (Bilgihan et al. 2011). Sirirak et al.'s (2011) research framework has three constructs and indicators for ICT systems. The three constructs are: (i) the availability of ICT components; (ii) the integration of ICT components; and (iii) the intensity of ICT component usage. These antecedents were presented in their research model as constructs accompanied by their associated indicator variables which are the four categorisations of ICT systems in hotels (i.e. room division ICT

systems; food and beverage division ICT systems; General/Back-Office ICT systems; and in-room ICT systems).

However, in order to address the issue of validity, Reino (2009) re-divided ICT systems for the hospitality industry into seven main categories; Front-Office system, reservation system, business administration systems, intelligence business systems, guest related interface, hardware and general network infrastructure.

3.3.1 Hotel Front-Office Systems (HFOS)

One of the most noticeable departments in the hotel is the Front-Office department which aims to smooth and support the progress of guest services and transaction before guest arrival until guest departure. Currently, Front-Office operations are done using the electronic system (Ansah et al. 2012). These systems are known as Hotel Front-Office Systems (HFOS). HFOS are the most central systems, which may run 24 hours a day, 365 days a year. Hotel employees should operate HFOS at the point of contact with the customer (Kim et al. 2008b). HFOS provides a variety of information to frontline employees and supports a swift and safe transaction time with the intention of reduce the time spend on the system and increase the time spend on customer service (Aziz et al. 2012). HFOS are usually designed using an easy to understand language and technology (Kim et al. 2008b).

One of the essential HFOS supporting the operations of the hospitality industry is the Property Management System (PMS) (Ham et al. 2005; Reino 2009; Bethapudi 2013; Murphy 2013). PMS is a computerised system that facilitates the management of properties (like hotels) by supporting their fundamental operations on a daily basis. PMS also centralises the interconnectivity between other ICT systems inside these properties. This utilisation of interconnectivity in Front-Office supports information sharing across the hotel (Ansah et al. 2012). In every hotel, there is a set of standard operations which PMS bundles can be incorporated either the hotel is small offering the basic facilities or large with an extensive portfolio of additional facilities. These functions may include; reservations, registrations, billing, report generations, housekeeping and basic marketing analysis (Bethapudi 2013; Murphy 2013). Thus, PMS has the possibility to support labour productivity and reduce costs by enhancing internal control and communication (Ham et al. 2005).

However, PMS may be the most expensive investment that hotels make in terms of both financial and human resources (Murphy 2013). Decisions on functionalities, systems

administration and interconnectivity of the PMS rely on the business abilities and necessities. These decisions should incorporate choices to identify which business activities should be supported by PMS, the amount and the locations of PCs from which the PMS ought to be entered, as well as the level of connectivity between this software and the other ICT systems. Additionally, hotel management should make decisions on whether they adopt their own PMS software or outsourcing this function by going to an Application Service Provider (ASP). ASP refers here to those software applications where files are located in a different area to that place from which these are accessed. The availability of ICT skill and knowledge within hotel staff will determine whether PMS should be sitting inside the hotel or hosted by an ASP. By depending on an ASP, the responsibility for the maintenance of PMS will be transferred to this ASP.

Regarding PMS administration, there is a wide variety of options depending on the hotel size and the dynamics of its business environment. PMS can be run sufficiently in small hotels by using a single standalone PC. However, if the PMS needs to be accessed from several workstations, the establishment will need a workstation server to store all the software files then all other workstations (terminals) will be joined with this server through a Local Area Network (LAN). LAN is a computer network working in a geographically limited area by means of wired and/ or wireless technology.

If the hotel is independent, both the PMS files and PMS database will usually sit together at the property level– unless PMS is an ASP, in this case the files will be sit at the software providers' location. However, if the hotel belongs to a chain, the information about reservations or customer may need to be receptive by the headquarters. In this case, there are two alternative ways for the place of the PMS and the connectivity between the property-level and the headquarter-level systems. The first way is by installing a multi-property Management System at the headquarters office and by giving the individual properties access to this PMS system through a Virtual Private Network (VPN). The second way is by installing a PMS at each property-level then linking them all with the headquarter management's system through a two-way communication using a VPN or ASP.

Most of the common PMS solutions in the market are normally provided in modules that support most of the Front-Office operations. However, the aspects of PMS and its boundaries are inconsistent for both suppliers and end user enterprises (Reino 2009). End user enterprises can adopt additional features in PMS depending on their specific requirements. These features can be acquired through additional modules integrated to the PMS in order to facilitate information flow throughout departments. Some examples for

these additional features are those supporting sector-specific activities such as the general business activities (i.e. human resources, accounting, etc.); basic business intelligence systems; and the management of additional facilities offered by the hotel such as restaurants, bars, spas, or conference centres.

However, if the establishment need more advanced features, then it must adopt additional non-modular software solutions. These software solutions can be operated as a standalone or can be interfaced for one or two-way connectivity with the PMS. Examples of these non-modular solutions are the additional systems, which support running the hotel (i.e. Energy Management Systems and Electronic Door Locking) in addition to Guest Service Systems (such as Electronic Minibar, In-Room Telephone, and In-Room Entertainment). This type of software and communication between them can deliver enhancements to the internal communications, business control, charges tracking and employee productivity. This in turn reduces the operating costs. Additionally, PMS can be interfaced to the electronic distribution systems in order to provide automatic updates about the available room inventory for sale.

Moreover, many hotels use additional facilities (i.e. restaurants, bar areas, conference and/or timeshare facilities) to generate additional revenue. These facilities require specific ICT systems to run efficiently. Therefore, hotel management can set up these kinds of ICT systems as standalone systems or they can integrate them seamlessly with PMS to support information share throughout the Front and Back-Office areas.

On the other hand, hotels can use additional facilities related to leisure activities, such as golf courses or spas. In order to support these leisure facilities, hotel management can implement a Leisure Management System or an Activity Scheduler for billing and scheduling operations. Leisure Management Systems can be fully integrated to PMS to enable guests to set up their appointments, book and/or close their bills from the front desk. When these systems are integrated with the Maestro PMS, guests can develop promotional packages including some of these leisure activities (Reino 2009).

Hotels with restaurants can also adopt the Restaurant Management Systems to support the supplementary business operations caused by these restaurants. Restaurant Management Systems are particularly designed to facilitate the operations of restaurant and/or catering facilities by enabling the input, storage and retrieval of data about customer preferences (Aziz et al. 2012). These systems may include kitchen display systems, kitchen labour management systems and/or alarm systems for different incidents. In hospitality establishments, Restaurant Management Systems can operate individually, or they can be

interconnected to the PMS systems for information flow throughout departments (Reino 2009). These systems are usually operated by using Electronic-Point-of-Sales (EPOS), which are presented below. These systems can produce reports that support managerial decision-making, improving service quality, reducing food delivering times, generating forecasts that help managers in planning ordering, food production and scheduling labour (Aziz et al. 2012).

Hotels with Conference and/or Banqueting facilities can adopt ICT systems particularly designed to support their daily operations. Like Restaurant Management Systems, these Conference and Banqueting Management Systems can operate individually, or they can be interconnected to the PMS systems to let sales agents to flawlessly book bedrooms that matched conference dates (Reino 2009). Further, these systems can store guest preferences and event information for subsequent direct marketing opportunities. An extra element which can be integrated to these systems or obtained as standalone software, relates to the Graphical Room Planning, which refer to an advanced software solution designed to support management in space organising and may even contain information on the safety regulations.

Finally, some hotels may offer timeshare accommodation. Therefore, PMS provides modules for timeshare management to support hotel management in these kinds of units. These modules can support management in space visualisation, identification and management (Reino 2009). Moreover, they can create reports, lock owner's accounts and track billable services such as housekeeping. Some superior features may also include a Web interface, which enables owners to access their profile information and to enter bookings for their own use (Reino 2009). Alike features are presented by the Vacation Ownership System established by Micros-Fidelio (Micros-Fidelio, 2008).

In hotel Front-Office, the use of ICT is fast growing, thus making work easy (Ansah et al. 2012). ICT are used in a Front-Office operation of hotels to create invoices and bills, to check-in and check-out guests, to monitor bookings and reservations, to record guest expenditure and share information within and across the hotel (Choi and Kimes 2002). By using ICT, customers can communicate with the Front-Office staff via the Internet or telephone to make and confirm reservations while staying at the comfort of their private places and homes. Customers can make payment for their booking online to facilitate their reservation, which reduces queuing and saves time at the Front-Office. Thus, debit and credit card payments have become an essential part of Front-Office operation by using appropriate hardware and software.

To sum up, as computerisation is becoming very important for the effective and efficient operations of the Front-Office (Ansah et al. 2012), there are many software packages that cover virtually every Front-Office function from reservations, guest history, room allocation, accounting and billing to the production of management information (Knowles, 1998). It is therefore surveying the different types of ICT systems in Front-Office operations in upscale hotels in Jordan and their impacts on marketing performance is important for hotel decision makers to effectively choice the right set of these systems.

3.3.2 Reservation Systems

O'Connor and Frew (2002, p.33) define a reservation system as;

> A mechanism that provides sufficient information to the right people at the right time and in the right place to allow a purchase decision to be made, and also allows the consumer to make a reservation and pay for the required product.

As the effective distribution is very important for hotels establishments because of their perishable inventories (O'Connor and Frew 2002), the developments in such systems is the most examined theme in research on ICT in the hospitality industry (O'Connor and Murphy 2004). The development of Computer Reservation Systems (CRS) in 1970s; Global Distribution Systems (GDS) in 1980s; and the arrival of the Internet in 1990s developed the operational sales practices in the hospitality industry (Buhalis and Law 2008; Ip et al. 2011; Scaglione and Schegg 2015). Utilising the Internet as a reservation method can be valuable for both hospitality firms and customers by providing real-time information exchange as well as reducing costs for both parties (Kim and Kim 2004; Kim et al. 2006; Schegg and Scaglione 2013). In small individual hotels, the room inventory can be established and accessed by a basic reservation module offered by any PMS software. This reservation module can visualise the room inventory in the hotel and can support reservations input, store and retrieval. This kind of module is located at the property level.

Conversely however, chain hotels may have the inventory sitting at the corporate level. These hotels tend to centralise reservation activities into headquarters or central reservation offices. Consequently, chain hotels must provide these headquarters and offices with specific software solutions in order to manage multi-property bookings. An example of these software solutions is the Central Reservation System (CRS), which is a tool to access both Global Distribution Systems (GDS) and Internet distribution systems from a single system.

CRS supports hotels in handling their online sales and marketing. It also allows hotel management to publicise their rates and room availability to be used by sales channels that are utilising the CRS, e.g. travel agencies. The CRS is primarily used to share information such as rooms available and rates across hotels within a chain (Ansah 2012).The connection to a CRS is considered one of the significant advantages of joining any hotel franchise (Knowles 1998). Since most of the chain hotels still usually take reservations at the property level, inventories databases must be synchronised between both the reservations system hosted at the property level and the CRS hosted at the headquarters or at the central reservation offices. Networking the CRS improves cost effectiveness, quicker communications, and efficient management of data and effective exchange of information (Ansah et al. 2012). Thus, most software solutions are designed to host the inventory in one site and deliver seamless communication between the headquarter level and the property level in order to maximise bookings (Reino 2009). With a sophisticated CRS, a hotel chain offers individual hotels in the chain with a technique to enhance reservations, improve quest services, maximise sales, increase market capabilities and implement yield management (Ansah et al. 2012). CRS is essential to survival of hotels even though it may face unprecedented operational and guest services challenges such as system downtime (Knowles 1998).

Regarding distribution channels, hotels can maximise their opportunities by enabling direct bookings, along with enabling a seamless connectivity of hotel inventory to one or more of the distribution channels that hotels can use. Currently, the delivery of businesses is exposed to ICT systems either directly or indirectly (Ansah et al. 2012). Maximising market share and exposure is one of the reasons of using multiple online channels by hotel managers. One of these distribution channels is the GDS such as; Galileo, Amadeus, SABRE and Worldspan. These systems include not only hotels but airlines, car rental and other travel resources and are commonly used by professional travel agents (Choi and Kimes 2002). GDS can be accessed through seamless connectivity via the Internet (Ansah 2012).

Another distribution channel is the Alternative Distribution System (ADS) which denotes those travel intermediaries, whose core activities are carried out online such as; Expedia, BookDirect, Orbitz, Travelocity, HotelFactory, RezView, iHotelier and ResExpress. A third possible distribution channel that hotels can use is by Central Reservation Systems, run by external partners including Best Western or Reserve America.

Additionally, hotels can also use their own Website as a possible distribution channel. This Website must be powered by a direct interface that can provide connectivity to hotel

inventory. Room bookings through a hotel Website can cut down the distribution costs (Wong and Law 2005; Kim et al. 2006) and minimise the hotel's dependence on intermediaries (Wong and Law 2005). Therefore, several hotel chains try to raise direct distribution through their own Websites by offering lower price (Demirciftci et al. 2010). However, developing such interfaces can become very expensive.

If hotel management cannot set up direct interfaces to each of the ADS and GDS, hotel management can employ switch companies to provide access to distribution channels and support the communication between PMS and GDS and/or ADS. In this case, the reservation (an instant computer message) from a GDS or a Website will be switched and transmitted by those companies to the hotel reservation system to request room availability. Once the reservation is checked and confirmed, the information will be transmitted back to the requestor. However, if there is no connectivity between PMS and GDS/ADS, hotels will try to obtain access to these distribution systems and then allocate rooms manually to the systems.

Another option for small hotels with limited technology is the Destination Management Systems (DMS) which also known as Destination Information Systems (DIS) (Reino 2009). DMS is based on the same type of the technology of switch companies but it is operated by a regional tourism organisation. Therefore, hotels can enhance their revenue generation by selling rooms through a diverse range of GDS, ADS and DMS systems. Furthermore, when enabling automatic communication between PMS and these Electronic Distribution Systems, the communication with external partners as well as the response to marketplace variations will be improved which leads to enhanced revenue generation.

Kim and Kim (2004) emphasise that online-based reservation systems should highlight some factors such as convenience, price, and safety to attract first time users and also should some include functions such as information search and transaction to retain previous users.

3.3.3 Business Administration Systems

In terms of the Business Administration Systems applications, these can be interconnected into the PMS or they can be operated as standalone systems. Some of the PMS providers offer particular modules to be combined into their PMS solutions or they offer connectivity to other software solutions (Reino 2009). The advantages of systems' integration in Front and Back-Office applications are mainly related to the increased internal information

accuracy and labour productivity by sharing the same database among departments. This category includes Accounting, Procurement, and Human Resources solutions (Reino 2009).

A different module that can be adopted for the PMS is the Work Order or Maintenance module. This module is designed to support the generation of reports about faults and to assign them a priority which can be visualised by the maintenance department, who would act accordingly, close the order when the maintenance has been finalised and notify the involved departments. This type of facility is focused on enhancing labour productivity, internal communication and improved control.

As a part of the Back-Office applications, eProcurement solutions enable the establishment to take advantage of business automation and electronic distribution channels for stocking. In establishments with high volumes of operations and with an extensive purchase activity, these applications enable the automated purchasing process. They are especially relevant for areas of the hotel where purchases occur in high volumes and are normally integrated to the restaurant, catering or banqueting management systems, in addition to the work order/maintenance system. This system identifies on a daily basis which items must be sold or held back, as well as handling operations such as ordering, receiving, stocktaking, stock controls, recipes, stock depletion and re-ordering (Reino 2009). This type of application enhances communication with suppliers, decision-making and internal communication, which can in turn translate into control improvement and labour productivity.

Systems supporting accounting activities, improve controls and decision-making. For accounting, both the Accounts Receivable/Sales Ledger and the General Ledger modules can be acquired as a modular solution offered to complement the PMS, supporting the comprehensive accounting, financial reporting, and analysis, as well as to manage guest billing, enabling reverse posting, several account systems, turnover tax advance return with an integrated official form, client analysis, replication, currency exchange booking, data import and export (Reino 2009). However, some PMS only provide the accounts receivable module and a different software package needs to be installed for general ledger accounting, which can be interfaced for one or two-way communication with the accounts receivable module or operated standalone. On the other hand, different modules can be available for the accounts receivable, including Travel Agency Commissions Payable module and the Owner Accounting module (Reino 2009).

Special modules or software packages can be acquired for supporting human resources management. Especially large establishments or those which belong to a chain, will handle high volumes of information related to their human resources, requiring special ICT

applications for managing this information and for setting up staff rotas, allowing establishments to maintain human resource employee files, support payroll pre-processing, generate staff schedules for unit-level operations, allow clock-in through EPOS, support vacation, sick and other earnings or benefits information, generate reports on scheduled vs. actual labour costs and facilitate employee review and evaluations. These systems are interfaced by default to the PMS when these are a modular solution. However, when an additional package is acquired, they can be interfaced with the PMS. Furthermore, they can also be interfaced with service devices such as computers or electronic point-of-sales for clock-in purposes. These types of systems are mainly directed to improve controls on rotas and timetables.

3.3.4 Business Intelligence Systems

Hospitality businesses can make use of intelligent information systems that transform large amounts of unstructured raw data into meaningful and useful information for design-making purposes. These systems help businesses in identifying and developing new opportunities and implementing appropriate investments (Law et al. 2009), which translate into a competitive market advantage and long-term stability. One type of these systems that hotels can utilise is the 'Revenue Management Systems' which enables hotels to set up special arrangements for reservation, including rates for selected dates to be displayed automatically at the reservation stage (Reino 2009). Revenue management is an essential instrument for the control of demand and supply (Fernandez et al. 2015). A fundamental branch of the revenue management is the 'Yield Management', which refers here to the variable pricing strategy, depends on understanding, predicting and motivating consumer behaviour in order to maximise profits or revenue from hotel room reservations.

Yield management functionality can be included in many PMS by default or as a modular feature in order to maximise the revenue generated through hotels sale (Reino 2009). However, hotel chains looking to optimise their sales can adopt advanced yield management solutions from ASP and interconnect these solutions to the PMS. This enables hotels to extract relevant forecast sales and consumer behaviour patterns from their databases. According to these patterns and predictions, hotels can optimise rooms and set their rates to increased revenue generation.

Another important system for hotels is the Customer Relationship Management (CRM) system, which refers to "ICT applications which enable the input, storage, retrieval and analysis of customer information for both marketing and service purposes" (Reino 2009,

p.84). As travellers are becoming lower brands loyal, more sophisticated, and more price sensitive, CRM turns out to be a strategic requirement for attracting and increasing customers support. It is now widely that successful CRM implementation should effectively align and combine ICT functionality with business processes (Sigala 2005). The basic feature of these systems is to analyse data for marketing reasons and support marketing decision-making. Hotel CRM systems can be interconnected to PMS and to other systems (Reino 2009). Wang et al. (2006) argues that an effective e-marketing strategy needs integration and coordination among CRM Systems, Website features and promotion techniques.

3.3.5 Guest Service Systems

Another additional system that accommodation establishments can have in place is the Guest Service Systems. These are devices specifically designed for providing additional In-Room services and features. Guest Service Systems can also be used for increasing customer satisfaction and/or for generating further revenue. Their relevance to the property and the required level of interconnectivity with the PMS will be determined by the property size, resources, type of customer, level of service offered and revenue generation strategies. Within this group the following can be included; Electronic Door Locking, Do-Not-Disturb/Make- Up-Room Electronic Annunciation, In-Room Telephone, In-Room Entertainment, Electronic Minibar, Internet Access, In-Room Printing facilities, Energy Management Systems and/or Energy Switches.

Electronic Locking Systems can be set up as standalone or in an online system with connectivity to the PMS and/or restaurant, catering and leisure and any other management system supporting facilities at the hotel. The standalone system operates with a sequence rather than synchronised, producing problems if the key is never used at the door. Although the standalone solution is simpler to install, and might fulfil the requirements of small businesses, the benefits of the electronic door locking systems range from housekeeping, to security, energy management and billing. Traditionally, special wiring would be required for interconnecting the individual access control units to the central workstation. However, nowadays, wireless solutions are offered for networking connectivity. These devices can be operated from standalone machines or they can be interfaced with any of the establishment's management software systems including PMS, restaurant management, etc. enabling further functionalities for the card such as their use for posting charges to the guest room through any networked card reader.

Furthermore, key readers and writers can have both the set ups of standalone and networked systems. Key Cards can also be enabled to provide access to restricted areas of the hotel – such as the car park; swimming pool etc. Some providers have also introduced a solution for cashless vending machines, which enables customers to use their key card to purchase products and to post charges to the guest room through wireless connection to the PMS. There are currently further developments in the industry towards biometric-automated locking systems, eliminating the need to carry a card for the customer.

The Do-Not-Disturb/Make-Up-Room Electronic Annunciation enables staff to identify the "Do-Not-Disturb" or "Make-Up-Room" status of the room from the corridor. This can be operated at one touch by the guest from the room or with a small motion sensor. These systems can be operated standalone or integrated with the PMS for centralised management of housekeeping activities (Reino 2009).

Energy Management Systems (EMS) enables hotels to reduce unnecessary energy consumption, usually related to lighting and/or heating. EMS refers to both to switches and software, and includes a wide range of devices and operates in several areas of hotels; however, they are mainly focused on the energy management of guest room (Reino 2009). The most common example refers to the electrical switch, which is only operated when the key card is inserted ensuring that all the systems are off when nobody is in the room. These types of solutions tend to be individually installed at the guest room level. However, further features are enabled through the integration of standalone devices to a centrally controlled system. This can be run from a PC terminal, which can be interfaced with the PMS, and offer extra features (Reino 2009). This may comprise a thermostat which allows the property to setback the room temperature when this is unoccupied, and handles the temperature control to the guest when the room is used; an infrared motion sensor which turned off the power when the room is not used for long periods; as well as enhanced lighting and fan control devices. An advanced feature that is offered by some suppliers enables guests to relax the temperature band by a few degrees and contribute to energy savings. Further, energy control is delivered through their centralised version, which links the system to the PMS and allows extra functionalities such as automatically illuminating the room when the guest checks-in, in order to create a welcoming atmosphere (Reino 2009).

The In-Room Telephone can fulfil a double functionality, related to guest service and housekeeping support. They are based on ‘Private Automated Branch Exchange’, an ICT system that allows external direct-dial from and to the guest bedroom. Its most basic use is to call accounting, enabling properties to keep track of phone calls and posting them to the

guest bill. Additional functions include setting wake up calls, receiving voicemails, setting up email alarms, caller identification from the front desk, shutting down the calling system from the room when this is occupied, and/or tracking fraud phone calls made by employees. An advanced feature of the telephone management system is call logging, which enables housekeepers to update the information on room status via the telephone handset, which can be especially useful for large and busy hotels, where frequent housekeeping updates are required. It also enables staff to track their location and for housekeeping supervisors to score the work undertaken by their employees. When the establishment is interested in offering more advanced features to the customer, a Guestroom Digital Assistant can be adopted integrating not only telephone access, call accounting and housekeeping log in services, but also enabling energy management of elements such as heating, lighting, drapes, alarm clocks, digital radios, displays of guest service information and communications, automated CRM monitoring and voice annunciation.

In-Room Entertainment Systems (I-RES) refers to the advanced TV-based services which offer customisation by the hotel and on-demand digital services individually or combined. Customisation can range from hospitable messages in the language of the guest, broadcast evacuation information, show telephone information and messages on distinct promotions, and additional services in the hotel, reading billing information and even the check-out procedure. Regarding on-demand digital services, these can include games and/or movies.

Electronic Minibars can be a significant source of revenue to several hotels. In busy hotels, where customers request to checkout promptly, housekeepers cannot permanently check the items consumed from the Electronic Minibar (Reino 2009). In this case, Electronic Minibars can be interfaced to the PMS systems, recognising the removal of items and automatically posting charges to the guests account. Since guests have a tendency to move items and then place them back again without consuming them, these devices normally allow some time for the guest to place it back again before reporting the item as consumed (Reino 2009).

In-Room Internet Access can be delivered directly to the guest computer or over the television system (Reino 2009). Subject to the business model of the hotel and whether the In-Room Internet Access is proposed only to customer satisfaction or support revenue generation, it can be charged per time of usage or it can be for free. The Internet connection can be dial-up via the telephone line, in which case, it will be charged through the call accounting system (Reino 2009). Alternatively, Internet providers offer high speed Internet with unlimited Internet connection per room for the whole hotel which can be payable at once/per day/per month (Reino 2009). Establishments have then the option to bill for the

Internet usage; offering this service for free or charging their guests. An interface to the PMS will effortlessly allow posting charges to the guest account.

Establishments where significant numbers of guests are travelling for business purposes will be expected to offer printing facilities. This service can be provided in-room or at the hotel business centre. It can also be provided through online partners, enabling guests to upload their file to a special Webpage customised for the hotel and retrieve the document from the hotel's printer. This facility can work seamlessly with the wireless network and with existing printers, by connecting the solution to a printer and to the Intranet.

Guest Service Systems mostly exist to increase customer satisfaction, however, when these systems are delivered for extra fee, they can become a key source of revenue for hospitality establishments. The communication between these systems and the PMS supports labour productivity, internal communication and the improvement of control, by enabling the accessibility to billing information via one system only (Reino 2009).

Therefore, there exists a vast selection of general business and industry-specific applications, which can operate standalone or be integrated in a networked system environment for supporting the accommodation businesses operations, contributing to business performance, improving labour productivity, supporting decision making, reducing operational costs, improving internal communication, communication with partners, communication with suppliers, increasing revenue, customer satisfaction and improving controls (Reino 2009).

3.3.6 Social Media

Social Media is the largest and fastest communication channel to transmit information to a large segment of people in the world. Social Media includes a wide range of online, word-of-mouth forums including blogs, service ratings Websites and social networking Websites (Mangold and Faulds 2009; Buhalis and Mamalakis 2015). In general, social media has become a significant factor in many industries recently (De Ascaniis et al. 2015; Mathur 2015). With the progress of Twitter and Facebook, many establishments have found it an ideal way to sell and promote their goods and services.

Social Media became an effective marketing tool in recent times as it allows consumers to share opinions and information that lead other buyers towards or away from particular brands, products and services (Litvin et al. 2008; Inversini and Sykes 2013; Minazzi and Lagrosen 2013; Ge et al. 2014; Buhalis and Mamalakis 2015; De Ascaniis et al. 2015). Therefore, the impact of consumer-to-consumer communications has been significantly

increased in the hospitality marketing concern (Mangold and Faulds 2009). Inversini and Sykes (2013) highlighted the significance of hotel senior management commitment towards utilising social media as marketing tool. Hoteliers should managed online reviews in Social Media and response to negative comments as a critical part of hotel marketing (Kim et al. 2015).

However, the outcomes form Minazzi and Lagrosen (2013) indicate that European hotels are still in first steps of developing social media strategies that offer a moderate level of integration among different media. Similar results were found within Chinese destination management organisations (Ge et al. 2014). It is difficult for travel and tourism companies to use Facebook to its full potential (Mathur 2015). The results of a study of Finnish tourism businesses by Pesonen et al. (2013) show that there are three main barriers for not using social media: lack of resources, concerns about social media and considering such technologies as not essential.

3.3.7 Hardware and General Network Infrastructure

In terms of the required hardware, in small hotels, a desktop computer would likely handle all the Front-Office operations. However, large establishments or those that provide several points of contact with customers, such as those with restaurants, bars, spas, etc., are expected to have more Front-Office interfaces.

Further, the dynamics of the establishment combined with the type of customers they serve can generate the requirement for different types of interface. Therefore, traditional desktop PCs and electronic cash registers are being substituted or complemented by alternative devices. This is the case of Electronic Point of Sales (EPOS). EPOS refers to the hardware systems that support service operations at bar and restaurants, since they have been primarily designed as a solution to the 'Electronic Cash Registers', enabling wider functionalities in establishments with a high volume of operations, including monitoring beverage and food orders, transmitting orders electronically to the production staff, automatically sending charges to the PMS account folios. However, in restaurants, these tend to be connected to Restaurant Management Systems (RMS).Some of the main requirements that need to be met by modern EPOS include consistent high operating speed, ease of use, reliability, rich functionality and remote supportability (Ansah, 2012).

Depending on the size and dynamics of the establishment, operators can consider the adoption of counter-based or hand-held devices that enable waiters to take and send orders to

the kitchen instantly, such as the case of Digital Dining. They can include further features, such as integrated credit card payment devices, and depending on the software solution, they can offer the possibility to send the orders directly to the kitchen, to split the bill or to intentionally hold orders without sending them automatically to the kitchen. In terms of staff logging in, this can be enabled through swipe cards, finger print or ID number input. The Fine Dining Point of Sale & Table Reservation system provided by Northwind includes a dynamic setting which allows staff to track clients' movements from table to table. They can be operated as standalone or connected to a Restaurant/Catering Management System, which can in turn be connected or interfaced with the PMS.

ICT solutions in a hotel can be networked to share information and resources via either Local Area Network (LAN) or Wide Area Network (WAN). The LAN helps to share information within a hotel, such as from Front-Office to restaurant and the WAN helps to share information from one hotel branch to another within the same chain across different geographical areas. Computers can connect to these networks to make use of facilities from another hotel or location (Ansah et al. 2012). This integration of ICT systems provides a powerful tool that brings advantage in strengthening and promoting hospitality industry (Mathur 2015). However, networking is still one of the major issues in ICT (Ansah et al. 2012).

Bethapudi (2013) argued that the integration of ICT in the hotel industry is critical for the success of hotel establishments. The strategic aim by most hotel managers is to integrate ICT with tourism in an attempt to support accessibility, availability of a wide diversity of services and products, visibility of information, and thus creating customer satisfaction (Bethapudi 2013). This effort includes the usage of computer software, hardware, and telecommunication devices to store, manipulate, translate, secure, send, and receive data. The growth in ICT integration is one of the most significant developments of date management (Ansah et al. 2012).

In either busy or budget hotels, alternatives to the traditional desk check-in and out processes are offered through kiosks, which integrate to most PMS systems. Similarly, laptops can be used to support check-in operations when the main check-in desk is busy. Additionally, hand held devices enable connectivity through a TCP/IP based network environment – i.e. wireless Internet or 'Global System for Mobile Communication' (GSM) – for restaurant and/or bar areas, which enables staff to place orders in the system while talking to the table they are serving.

Finally, video display systems are also used in high standard hotels with high amounts of guests in order to display incessant updated information and announcements. Some kinds of these video displayers can be interconnected with the PMS. The main areas to set up video display systems are the lobby areas, conference centres or any of the other activity hubs of the hotel.

3.4 ICT and Hospitality Business Performance

Historically, the first adoption of ICT in tourism was by airlines in 1950s through using the Computer Reservation System (CRS) (Ma et al. 2003). However, the use of ICT in the hospitality industry did not commence until the late 1970s (Collins and Cobanoglu 2003; Sahdev and Islam 2005). In the 1980s, hotels began to use Global Distribution Systems (GDS), hotel Property Management Systems (PMS) and hotel CRS systems in order to improve interoperability and interconnectivity (Ma et al. 2003). Since then, studying the impact of ICT on the hospitality industry has evolved. In his synthesis of previous literature about information technology in tourism, Frew (2000b) noted that there was no mention of the impact of the Internet or the Web on tourism prior to 1994. Ip et al. (2011) argued that the revolution of ICT has led to an unprecedented development in the hospitality industry.

The literature shows three different relationships between ICT and performance (Breznik 2012; Mihalič et al. 2015). First, some studies (e.g. Lee et al. 2003; Ham et al. 2005; Lam et al. 2007; Piccoli 2008; Karadag and Dumanoglu 2009) consider different ICT systems to be significant competitive advantage resources. Academics from this school of thought argue that the impact of ICT systems on competitiveness can be either direct or indirect (Breznik 2012) and recognise investment in ICT as capability to reduce costs and enhance productivity (e.g. Sigala 2003; Ham et al. 2005; Sirirak et al. 2011). In contrast, some researchers claim that there is no significant influence from ICT investments on the value or the performance of a company and its competitive advantage, generally supporting the ICT paradox theory (e.g. Karadag and Dumanoglu 2009). The third, quite ancient, view (Kettinger et al. 1994) declared that ICT has a negative influence on business performance proposing that in a post-ICT implementation period organisations regularly experience competitive declines either in market share or profit.

Many studies have emphasised the importance of ICT for tourism industry. According to Mihalič et al. (2015), ICT forms a major part in tourism, travel and the hospitality industries. It is seen that the tourism and hospitality industries have been heavily affected by ICT

applications (Seng 2015). On the global scale, the fast development of ICT has rapidly changed tourism industry structures (Armijos et al. 2002; Ma et al. 2003; Buhalis and Deimezi 2004; Wang and Qualls 2007; Buhalis and Law 2008; Reino et al. 2013). The hospitality industry is one of the industries that are closely linked to the progress in the use of ICT. In recent decades, ICT is viewed as a strategic resource/asset in the hospitality industry (Aziz et al. 2012). The technological developments of ICT have been increasingly recognised as a critical ingredient for a hotel company's strategic plan (Singh et al. 2006; Sirirak et al. 2011; Bethapudi 2013; Reino et al. 2013; Richard 2013; Mihalič et al. 2015).

Moreover, the literature surrounding the impact of ICT investments on hotel performance indicates that such investments may increase hotel performance and productivity (e.g. Sigala, 2003; Ham et al., 2005; Sirirak et al. 2011). ICT was also recognised as a strategic asset for hospitality firms to improve their strategic competitiveness (e.g. O'Connor 1999; Siguaw et al. 2000; Wang and Qualls 2007). Furthermore, some literature emphasise that business performance in the hospitality sector is positively linked to early adoption of ICT. Based on a literature review, Gray et al. (2000), for example, argued that company performance in the hospitality industry is positively influenced by implementing successful innovation strategies as well as by early adopting the new ICT solutions for business communication.

Improving performance is the main reason for using ICT in the hospitality industry (Ham et al. 2005). There is increasing research into the relationship between ICT usage and business performance in hospitality firms (e.g. Gray et al. 2000). In the literature, there is an identified positive relationship between ICT infrastructure and organisation productivity (e.g. Byrd and Turner 2001) and efficiency (e.g. Sahadev and Islam 2005). Many researchers discussed how hotel establishments have widely adopted ICT to increase operational efficiency and productivity, support employees, improve service quality, gaining time, replace the existing paper systems, reduce costs and improve long-term profitability (Siguaw and Enz 1999; Armijos et al. 2002; Gilbert and Powell-Perry 2002; Lee et al. 2003; Ham et al. 2005; Law and Jogaratnam 2005; Sahadev and Islam 2005; Chathoth 2007; Kim et al. 2008b; Karadag and Dumanoglu 2009; Karadag et al. 2009; Law et al. 2009; Reino 2009; Bilgihan et al. 2011; Šerić and Gil-Saura 2011; Sirirak et al. 2011; Aziz et al. 2012; Verma et al. 2012; Kucukusta et al. 2014; Kapiki and Fu 2015). According to Kim et al. (2008b), hospitality industries have identified effective implementation of ICT as a vital component to promote and achieve successful planning, business processes and decision-making.

Managing information, communication systems and problem-solving are some examples of the benefits that ICT can provide the hospitality industry. Managing information resources

are crucial for conducting successful hospitality operations (O'Connor and Frew 2002; Ham et al. 2005; Lam et al. 2007). As ICT consists of a wide-ranging of forms used to generate, capture, manipulate, communicate, exchange, present, and use information (Ryssel et al. 2004), hospitality service providers are now competing through the use of new technologies in providing information and knowledge management (e.g. Schegg et al. 2002; Wong and Law 2005; Irvine and Alistair 2008). According to Li et al. (2012), managers used different ICT applications to acquire different knowledge. Connolly (2000) contends that ICT can transform information into knowledge that advances the competitive profile of hospitality establishments.

Based on these developments, hotel companies are benefiting from ICT to managing guest services, forecasting guest demand for reservation as well as managing data, revenue and reservation (Ansah et al. 2012). One of the examples of using ICT in hotels is for yield management, which thus can provide an advance control of room inventory and support hotel management with a wealth of information and data that may possibly raise room occupancy and revenue (Knowles 1998).Moreover, Kim et al. (2006, p.898) states that, "hotels with poor performance are viable only because consumers lack information about more efficient and less expensive alternatives". The information-intensive character of the tourism industry proposes an important role for Internet technologies in providing travellers with relevant destination information (Jeong and Lambert 2001; Litvin et al. 2008). Burgess et al. (2011) emphasises the role of Web technology in promoting destinations to the tourists all over the word.

ICT is also considered as one of the most significant infrastructure factors of hotel communication system (e.g. Wong and Law 2005). The unique abilities of ICT can provide firms with "two-way, customised, one-to-one, database-driven communication programmes" (Šerić et al. 2014, p144). Thus, the use of ICT does not just offer practical benefits for general management; it can help hospitality providers to overcome the disadvantages of place and space (Irvine and Anderson 2008). Using advanced ICT solutions for communication programmes can also enable hotel establishments to capture precise data on customers. Furthermore, problem-solving techniques are in high demand in the hotel industry. Hotel guests often request efficient and creative solutions face to face with the hotel management. If the hotels' management can successfully solve the problem, it will increase a company's profitability and reputation. ICT has significant problem-solving solutions that can help hotel management in decision-making (e.g. Law and Jogaratnam 2005).

Therefore, many researchers emphasise the importance of ICT for the hospitality industry. Kandampully (2006) and Singh et al. (2006) consider ICT as an essential factor in their business model for the hospitality industry. Sirirak et al. (2011) states that ICT is adopted by hotels as "a way to cope with rapidly changing environments". A study by Kayar and Kozak (2010) argued that Turkey's tourism industry could improve its competitiveness by investing in ICT. Hotel managements have used and will likely continue to use ICT to manage hospitality operations (Siguaw et al. 2000; Sigala et al. 2001; Huh et al. 2009). Paraskevas and Buhalis (2002) contend that hoteliers agree on the benefits gained from using ICT in their establishments. By surveying managers perceptions of 122 upscale hotels in Turkey, Karadag and Dumanoglu (2009) found that hotel managers view guest-related ICT applications as highly productive and that they appreciate the benefits of such technologies. The findings from Kapiki and Fu (2015) indicate that the top five ICT systems considered the most significant to success for the Greek hotel managers are: Website development with booking engine; guest security systems; on-line guest satisfaction evaluation; the property management systems; and, high-speed/WiFi Internet.

In contrast however, several researchers have found inconclusive and controversial findings on the productivity of ICT investment in many industries (this has been referred to as the ICT productivity paradox) (Karadag and Dumanoglu 2009). Sigala (2003) identified that past studies regarding ICT productivity have several shortcomings, e.g. measurement errors, redistribution of impacts, ICT mismanagement. Moreover, Bilgihan et al. (2011) and Sirirak et al. (2011) have argued that not all ICT investments may result in positive outcomes for hotel establishments. One of the disadvantages is the possibility of losing of money during system downtime, that is, when the systems are off-line, clients cannot make reservations both on-line and on the telephone (Ansah et al. 2012). Additionally, there can be a lag-time between ICT investment and the attainment of their desired outcomes (Bilgihan et al. 2011). Doubts around the efficacy of ICT investments in the hospitality industry have persisted (Ham et al. 2005; Šerić and Gil-Saura 2012). Law and Jogaratnam (2005) evidenced that hotel managers did not seem to recognise the significance of ICT as an element of business strategy. Murphy and Rottet (2009) highlighted the critical role of security and privacy issues for the willingness of customer to use ICT in hotels.

Therefore, while some hotels have increasingly launched new ICT systems on a massive scale, others lag far behind. This ICT gap is occurring both in time and in geographical space (Mihalič et al. 2015). Furthermore, different organisations within the same industry, including small local family-owned hoteliers or big international hotel chains, place

themselves on different sides of the technological divide (Mihalič et al. 2015). Decisions regarding investment in such ICT systems are often governed by the degree of hotels' awareness of ICT, or on how they perceive ICT (Karadag, et al. 2009) and its capabilities to boost their competitiveness.

The study of Ruiz-Molina et al. (2010) exposed that the level of understanding the possibilities and the value of CRM solutions by hotels managers is relatively low due to the complexity of such systems. In a study conducted in 28 European countries, Kayar and Kozak (2010) categorised ICT Infrastructure as a secondary determinant for destination competitiveness. Sigala (2003) revealed that productivity gains do not accrue from ICT investments per se, but rather from the full exploitation of ICT networking and informalisation capabilities. In the Portuguese hotel industry, Paço and Pérez (2015) found that the availability of ICT does not alone lead to optimum performance; there are other particular issues which must be taken into account so that the benefits of ICT can be experienced. Ma et al. (2003, p.452) stated that, "technology itself cannot bring value to any tourism company. However, the strategic and efficient implementation of technology within a business can reduce operational costs and support the delivery of better products or services to customers".

ICT adoption in hotel establishments is a complicated process involving the influence of several internal and external factors, including technological skills and economies of scale (Wang and Qualls 2007). Reports published recently reveal that tourism is behind in ICT adoption than other industrial sectors (Reino et al. 2013). Ip et al. (2011) argued that there are some challenges that hoteliers should not overlook when using ICT-related applications within the hospitality industry. For example, ICT utilisation depends on the extent to which hotel staff accepts ICT (Huh et al. 2009) and the perceived benefits of such utilisation. The perceived benefits of ICT solutions have motivated the real use of these solutions by hotel (Huh et al. 2009) or even the attention towards using ICT (Lam et al. 2007). The perceived beliefs of ICT may include ICT usefulness, ease of use and compatibility (e.g. Moore and Benbasat 1991).

Thus, more studies exploring the relationship between ICT adoption and hotel performance are needed (Sirirak et al. 2011). Researchers have realised that the relationship between ICT and hotel performance is complex due to the different analytical approaches and management practices within the hospitality industry (Karadag and Dumanoglu 2009). Bilgihan et al. (2011, p.139) identified four areas when examining decisions related to ICT adoption in hotels; "(i) coherence between the business strategy and IT decision, (ii) types of

IT applications, (ii) intended benefits of IT decisions, and (iv) decision-making style". Therefore, the evaluation activities for hospitality ICT investments have not been performed widely and consistently (Karadag et al. 2009). Understanding the factors affecting ICT adoption behaviour by hotel establishments is a paramount significance to both academia and practitioners (Wang and Qualls 2007).

Hotels in USA and Europe have adopted ICT and effectively integrated systems like customer relation management (CRM), computer reservation system (CRS), supply chain management, enterprise resource planning, project management system, office automation system, and knowledge management system, and are capable to recognise the intended benefits (Li 2012). However, hotels in China used ICT as a data processing tool to manage basic business activity like processing transactional documents along the value chain (Li 2012). Compared with hotels in the developed countries, hotels in developing countries need to strategically integrate ICT solutions with high order value chain functions (Li 2012). Due to financial and human resource constraints in developing countries, including Jordan, it is believed that Jordanian hotels might also be operating ICT systems at the basic business level.

3.5 The Impact of ICT on Marketing Performance

From the previous section, we can conclude that the adoption of ICT tools has a positive impact on the overall performance levels of organisations. This section discusses the literature on the impact of ICT on marketing performance within hospitality industry. In general, the development in marketing function was seen by many researchers as strongly intertwined with ICT issues (Brady et al. 2008) and the most affected business function in tourism from the ICT revolution (O'Connor 1999; Yu and Law 2000; O'Connor and Frew 2002). However, there are a few researches that have examined the impact of ICT on marketing performance in the context of service industries. For example, in a study for Korean service firms, Noh and Fitzsimmons (1999) found that the level of ICT usage is significantly related to the performance of the marketing function. They concluded that database and networking were the most important ICT categories. Another study by Ryssel et al. (2004) produced parallel results. They used an empirical analysis of 61 German companies engaged in customer-supplier relationships and they found that ICT effect customer' trust and commitment. These studies support the argument that the marketing benefits from ICT investment can be identified.

Hotel companies need to employ a number of strategies in order to compete effectively. Among other tools, hotel managers can use ICT solutions to attract more guests; to improve service quality; to deliver exceptional guest satisfaction; and to increase market share and revenues (Kapiki and Fu 2015). However, the research focussing on the relationship between ICT and marketing performance in the hospitality industry did not receive sufficient attention. The reason for this, according to Sigala (2003), is that service organisations tend to be less marketing oriented than manufacturing organisations as well as being more function orientated than marketing orientated. The specific literature concerning the effects of ICT on hotel marketing was concentrated in some particular research aspects (e.g. competitive advantage and customer satisfaction), and there limited research on the effects of ICT availability, integration and usage on the overall marketing performance of hotels. Table 3.2 summarises the contemporary literature (for the period from 2013 to 2015) on the effects of ICT on the marketing function of hotel firms.

Table 3.2 Literature Review on the Effect of ICT on Hotel Marketing

Authors and sample	ICT aspects	Marketing aspects	Findings
Aureli et al. (2013). 3 and 4-star hotels, Italy.	TripAdvisor reviews.	Online reservations.	TripAdvisor reviews influences the online reservations.
Buhalis and Mamalakis (2015). One hotel, Greece.	Social media.	Return on investment.	Social media affects marketing performance in hotels.
Fernandez et al. (2015). 31 hotels, Spain.	Revenue management systems and Internet distribution channels.	Pricing.	Revenue management system is an essential instrument for the control of demand and supply.
Jakovic and Galetic (2014). 5-star hotels, Croatia.	Hotel Websites.	Marketing and commercial activities.	Marketing and commercial activities offered on hotel Websites have a significant impact on the hotel's commercial success.

Authors and sample	ICT aspects	Marketing aspects	Findings
Jung et al. (2014). 206 managers from hotel, USA.	In-room ICT systems.	Guest experiences and revenue.	Installing specific in-room ICT can have a significant effect on enhancing the customer experience and increasing revenue.
Kim et al. (2015). 128 hotels, USA.	Online reviews in social media.	The average daily rate and the revenue per available room.	The overall ratings are the most salient predictor of hotel performance, followed by response to negative comments.
Mihalič et al. (2015). Hotel managers, Slovenia.	CRS, the Web and the Internet presence.	Price, image, contacts, differentiation, quality, and profitability.	Hotels need time to recognise the competitiveness potential of every new resource, and once they start to implement it its importance may change over time.
Reino et al. (2013). Hotels, Spain.	Social media, PMS, Guests Entertainment Systems and online presence.	Customer loyalty, guest experience, and competitiveness	Tourism is behind in ICT adoption than other industrial sectors.
Richard (2013). Hotels managers, South Africa.	SMS, client relationship, email, intranet, own Website, accounting packages, and VoIP.	Ability to attract and retain clients.	A significant part of tourism success is attributed to the adoption of ICT.
Scaglione and Schegg (2015). Hotels, Switzerland.	Electronic distribution channel.	Innovation and market share.	Utilising the Internet as a reservation method can be valuable for both hospitality firms and customers
Šerić et al. (2014). 335 guests in 20 hotels, Italy.	Integrated marketing communications	Brand image, perceived quality, and brand loyalty.	There are positive relationships between integrated marketing communications, ICT and hotel brand equity.
Stienmetz and Fesenmaier (2013). Travellers, USA.	Online information channels.	Response to advertising.	The use of information sources and online channels by potential travellers affects their response to advertising.

Authors and sample	ICT aspects	Marketing aspects	Findings
Sun et al. (2015). 6 hotels, Hong Kong.	Room reservation system.	Room Rate.	The Internet has significantly changed how hotel firms price their products.
Velázquez et al. (2015). 386 hotel guests, Spain	Electronic word-of-mouth.	Customer loyalty and satisfaction.	There is a positive effect of electronic word-of-mouth on general intention to recommend the hotel.

Source: Literature Review

As mentioned previously, the tourism and hospitality industries have widely adopted ICT to reduce costs and improve operational efficiency (e.g. Law et al. 2009). Since the 1990s, ICT was implemented in the tourism and hospitality industry to increase productivity, improve service quality and ultimately guarantee customer satisfaction (Siguaw and Enz 1999; Connolly 2000; Law and Jogaratnam 2005; Šerić and Gil-Saura 2011). The technological revolution of ICT evolves rapidly providing new tools that re-engineered the entire process of the tourism and hospitality marketing (Buhalis and Law 2008). According to Frew (2000a) marketing was the second of the most frequent citations for ICT within hospitality in 1980s and 1990s with more than 65% of the examined papers.

This research seeks to explore the role that ICT plays in the traditional function of marketing. Hospitality marketers may use ICT to control the four basic variables of marketing mix (i.e. product, prise, promotion and place). A product is seen as a particular item that fulfils what the prospective consumers demand. This product can be a tangible good or an intangible service. Middleton et al. (2009, p.139) describes the product concept in the marketing mix as "the characteristics of the product as designed by strategic management decisions in response to marketing managers' knowledge of consumer wants, needs and benefits sought". In services marketing, there has been wide deliberation of how to develop the concept of 'product' to echo the recent post-industrial context of service and experience industries. In tourism, products are designed for and constantly altered to match the needs and prospects of target consumers and their capability to pay. Most establishments produce and market a number of products to correspond the recognised wants of not one but many segments.

Middleton et al. (2009, p.139) described four components of the 'product' in tourism industries. This consists of firstly, the basic design for all the elements that are fitted together

in an offer for the prospective customers (e.g. the short-break package marketed by a hotel group). Secondly, the ambience and the style of this offer which, in service products, are dealing with customers on the premises of wherever the product is delivered. The product's price and image are mainly promoted by design decisions on the ambience and the physical environment. This is commonly known as 'the physical evidence.' Thirdly, the service element, comprising the number, ability and attitude of all staff involved in the routes that 'deliver' the product to the consumer. Finally, branding and the focus on communication, which identifies specific products with a specific set of values, inimitable image and name, and expectation of the experience to be provided.

There is an increasing emphasis on the role of ICT as a way of differentiating hotel products/services (e.g. Connolly 2000; Kim et al. 2006). Šerić and Gil-Saura (2011) found that loyalty programs, digital technology and 'ambient intelligence' are the most differentiating ICT solutions that have been employed by three and four star hotels in Croatia to improve the perceived quality of their processes and services.

The investments into ICT solutions in hotel firms have boosted over the past decades (Armijos et al. 2002; Ham et al. 2005; Piccoli 2008; Bilgihan et al. 2011). These investments help hotels to improve the experience of hotel product/service significantly (Law and Jogaratnam 2005; Sahadev and Islam 2005; Irvine and Alistair 2008; Rayna and Striukova 2009; DiPietro and Youcheng 2010; Ruiz-Molina et al. 2011; Šerić and Gil-Saura 2011; Kucukusta et al. 2014). According to Singh et al. (2006), these investments were not only to meet customers' expectations in a hotel product, but also to exceed these expectations. Siguaw and Enz (1999) emphasised that the key to future success in the hotel industry stands on the ability of the industry to harness ICT to improve product/service to guests. In establishments where business travellers comprise the largest market segment, the importance of ICT investments for the experience of hotel product/service is much more emphasised (Yeh et al. 2005; Karadag and Dumanoglu 2009). Ruiz-Molina et al. (2011) provided several ICT solutions that can enhance the customer experience in the hotel product in Spain, these include; digital satellite TV, cable TV, interactive TV, LCD screen and touchscreen. Moreover, Jung et al. (2014) found that installing specific in-room ICT can have a significant effect on enhancing the customer experience and increasing revenue. Velázquez et al. (2015) found significant relationships between ICT use and overall satisfaction with the hotel.

ICT may be used strategically by hotels to acquire a deep understanding of the needs, preferences and behaviours of their customers regarding products/services (Ruiz-Molina et

al. 2011). The hospitality industry widely relies on ICT to manage its marketing information to improve their products/services (Leong 2001; Wong and Law 2005). According to Heart et al. (2001), one of the most effective ICT systems applied to the hotel industry is the hotel information system. The hospitality industry widely relies on ICT to manage its information to increase customer satisfaction (Chathoth 2007). To improve profitability and customer loyalty, hotels may use CRM to seek, gather and store the accurate information, validate and share it throughout the entire organisational levels for creating unique personalised experiences for guests (Sigala 2005). Lee et al. (2003, p.428) posits that customer databases are handled for three main aims: (i) to produce mailing lists for marketing activities and direct sales; (ii) to formulate packages, rates, and the targeting of markets; and (iii) to support the performance of value-adding services through intangible personal assistances. Wood (2001) investigated marketing information systems (MkIS) and foound that SMEs in this sector make use of MkIS systems that mainly concentrate on internal and immediate operating environment data. The most common use for MkIS is to build and maintain customer databases. In Jordan, the current method of MkIS utilised within tourism SMEs is based largely on internal data supplemented by customer surveys as well as by the informal investigations (Al-Alak 2010).

On the other hand, today's guests are increasingly sophisticated and have higher expectations of the products, services and types of technologies that the tourism industry has to offer (Armijos et al. 2002; O'Connor and Frew 2002; Buhalis and Law 2008). ICT significantly impact on travellers' knowledge, behaviour and attitudes (Sigala 2005).The hospitality industry is considered "an excellent example of an industry that has transformed itself in response to changes in customer requirements and demands" (Lee et al. 2003, p.423). Nowadays, the use of information sources and online channels by potential travellers affects their response to destination advertising (Stienmetz and Fesenmaier 2013). Moreover, online reviews in social media are the most salient predictor of hotel performance (Inversini and Sykes 2013; Kim et al. 2015). For example, in their study into the three and four-star hotels in Italy, Aureli et al. (2013) found that TripAdvisor reviews influence the online reservations. Therefore, many researchers have emphasised the significance of providing information for hotel guests for better marketing performance. Toh et al. (2011), for example, recommended hotels to enrich the hotel's Website with information in order to strengthen sales on hotels' Websites.

Several researchers have examined the role and importance of ICT in hotel selection. For example, a study by Beldona and Cobanoglu (2007) categorised guest-oriented ICT solutions

into four groups according to two dimensions; expectation of importance when selecting a hotel and satisfaction of performance during occupancy. The first group was for the technologies that ranked high on both dimensions such as; in-room high speed Internet access; remote control TV and express check-in/out. The second group was for the technologies that had high importance but low performance ratings such as; wireless Internet access, easily accessible electrical outlets; alarm clock and on-line reservation capabilities. The third group was for the technologies that had high performance ratings but low importance, such as in-room personal computers, Web TV, and pay-per-view movies. The fourth group revealed low ratings for both technology importance and performance, such as business centre services and plasma screen television.

Berezina and Cobanoglu (2010) stressed the significance of in-room technologies for hotel selection as travellers become more technologically savvy. According to Lee et al. (2003), ICT solutions implemented in hotel rooms have not only enhanced in-room services, but also offered new opportunities for entertainment. In a study of upscale in Thailand, Prayukvong et al. (2007) acknowledged the dominant impact of some ICT amenities (e.g. minibar, television, telephone service) on customer satisfaction without regard to 'sociodemographic' characteristics of the guests. However, a study conducted by Ham et al. (2005) in Korean upscale hotels, revealed that some guest-related interface solutions (e.g. electronic locks, call accounting, energy management and information services) had no significant influence on hotels performance.

The second element of the marketing mix is the price (i.e. cost to the consumer). It denotes the amount a customer pays for the product. It is seen as the issued or negotiated terms of the exchange transaction for a product between two parties; the producer who wants to attain predetermined sales and revenue volumes, and the prospective customer who desires to maximise the perceptions of value for money compared to alternative choices. Price is crucial for any organisation as it determines its profit and hence, its survival. Baker (2000, p.311) considers understanding the utility the customer places on the company's products or services (i.e. value prising) as one of the core marketing competences for any establishment. The price is the single, most efficient tool that hoteliers have to adjust the demand and the offer in the short term (Fernandez et al. 2015).

However, pricing is often the least understood element of the marketing mix (Hudson 2008; Sun et al. 2015). Marketers must be aware of the customer's perceived value of the product when the price is set. Hoteliers are using different strategies to improve their revenue (Fernandez et al. 2015). They can offer a regular (published) price and promotional

(discounted) price for a product. For example, hotels may set promotional prices for their rooms in order to respond to the necessities of particular market segments or to manipulate demand to counter the consequences of seasonality or competition. Kayar and Kozak (2010) emphasised that lower prices increase the competitiveness of countries for tourists. Hotel pricing is currently attracting more attrition from researcher and professionals (e.g. Demirciftci et al. 2010).

In the age of e-tourism, the Internet makes hotel room rates more transparent to customers and has significantly changed how hotel firms price their products (Ip et al. 2011; Sun et al. 2015). As discussed previously, Revenue Management Systems is one type of ICT systems that hotels can utilise to set up special arrangements for reservation, including rates for selected dates to be displayed automatically at the reservation stage (Reino 2009). These kinds of systems are used to control of demand and supply (Fernandez et al. 2015). Yield management systems, a fundamental branch of the revenue management, are used to utilise variable pricing strategies, depends on understanding, predicting and motivating consumer behaviour in order to maximise profits or revenue from hotel room reservations. Perhaps one of the technologies that affect prising strategies on hotel firms is the Internet. A study by Sun et al. (2015) on hotels in Hong Kong confirms that the Internet has significantly changed how hotel firms price their products.

The most observable variable of the marketing mix is promotion (i.e. communication) which includes advertising, sales promotion, sales-force activities, public relationship management and Internet communication. Promotional techniques are used to attain awareness of a product or a brand by prospective customers, to increase their enthusiasm, accelerate demand and generally to provide a motivation to purchase. This can happen in two ways, either straight from a producer or via a channel of distribution. There is a growing range of communication techniques that are frequently used by producers to raise awareness and encourage positive attitude to products. These communication techniques also comprise supportive ‘relationship’ information that helps customers to make their purchasing decisions and in particular to encourage them to make repeat purchases.

The branding literature proposes that the integration of marketing communication programmes lead to different attributes of brand image (Keller 1993; 2009). Therefore, using ICT for marketing communication have been shown to enhance marketing efforts to create brand equity, maintain brand loyalty or increase guests’ overall satisfaction (Keller 1993; McGrath 2005; Lin et al. 2010; Chatzipanagiotou et al. 2011; Šerić and Gil-Saura 2011; 2012; Šerić et al. 2014). From the perspective of 335 guests in luxury hotels in Rome, Italy,

Šerić et al. (2014) found positive relationships between integrated marketing communications, ICT and hotel brand equity (i.e. brand image, perceived quality and brand loyalty).

On the other hand, 'word-of-mouth,' which is a kind of the informal communication about particular product, service or even a brand by ordinary individuals, plays an important role in purchasing decisions. Satisfied customers are essential for creating word of mouth momentum (Litvin et al. 2008). However, sales staff and public relations often play a critical role in word-of-mouth. Therefore, the terms of 'promotional mix' or 'communication mix' have attained a much greater emphasis in the current literature. Electronic word-of-mouth, which can be defined as "all informal communications directed at consumers through Internet-based technology related to the usage or characteristics of particular goods and services, or their sellers" (Westbrook 1987, cited in Litvin et al. 2008, p.461), is consider cost-effective means for marketing tourism and hospitality (Litvin et al. 2008).

ICT systems have dramatically changed the way people communicate, by offering channels that promote the transactions and interactions between businesses and consumers (Buhalis and Mamalakis 2015). ICT may be used by hotel customers as a mean of 'word of mouth' which denotes the passing of information from customer to customer. Hotel customers may use the Internet and the social media for reviewing their experience and make recommendations for others (e.g. Ham et al. 2005; Buhalis and Mamalakis 2015). After hotel guests have returned home, they often like to share their experience with others. Those guests may use social media or the review sites such as TripAdvisor or HolidayCheck to share their experiences (Law et al. 2009; Mangold and Faulds 2009; Boon et al. 2013). Litvin et al. (2007, p.458) states that, "when word of mouth becomes digital, the large-scale, anonymous, ephemeral nature of the Internet induces new ways of capturing, analysing, interpreting, and managing the influence that one consumer may have on another". Buhalis and Mamalakis (2015) confirmed the effects of social media on marketing performance in hotels.

Scholars and practitioners in the tourism industry seem to agree that electronic word of mouth affects hotel operational performance (Aureli et al. 2013; Bethapudi 2013). By surveying 386 hotel guests on Spain, Velázquez et al. (2015) affirmed a positive effect of electronic word-of-mouth on general intention to recommend the hotel. According to Boon et al. (2013) online consumer reviews and ratings on TripAdvisor offer researcher and hotel managers a useful new tool for measuring hotel service quality.

One of the most influencing ICT solutions on the dynamics of the hospitality industry is the Internet. Marketing in hotels has been impacted by the Internet global reach (Buhalis and Mamalakis 2015; Fountoulaki et al. 2015). By using the Internet, travellers nowadays understand much better where to find the relevant information, where to get the best deal, and where to start a conversation with other travellers on the Internet (Xiang et al. 2013). Hotel firms can provide their guests with pre-visit and in-visit information using the Internet. The Internet is used to provide multimedia information about destination to prospective travellers (Seng 2015). Networking ICT improves cost effectiveness, quicker communications, and efficient management of data and effective exchange of information (Ansah et al. 2012). Jeong and Lambert (2001) found that customers are more attached to the organisations via the Internet, effortlessly obtaining necessary information on products and services for their eventual purchase decisions. In the literature on the Internet was mainly used by hotels as a means of communication, transaction and competitiveness (e.g. O'Connor and Frew 2002; O'Connor and Frew 2004; Sahadev and Islam 2005; Litvin et al. 2008; Schegg and Scaglione 2013). For example, Litvin et al. (2008) found that there are increasing numbers of travellers are sourcing the Internet to obtain destination information and to conduct transactions online.

Internet Marketing, eMail marketing, Electronic Data Interchange (EDI) for marketing activities, Mobile Marketing, and Customer relationship management (CRM) are some of the eMarketing tools. The omnipresent nature of the Internet has revolutionised hospitality marketing (Murphy et al. 1996; Leong 2001; Ip et al. 2011). In this context, Leong (2001, p.181) stated that, "hotels can define new paradigms for electronic commerce and enable, facilitate, sustain and reward interaction between consumers and hoteliers. Hotels can exploit potential markets by having a Website to promote and market their facilities and outstanding features". Although the Internet considered as a great deal for hospitality marketing, Connolly (2000) posits that the Internet has also some challenges for hotel marketers. For example, it is challenging to get the costumers' attention long enough to "tell your story" (Leong 2001). Moreover, Law et al. (2009) contends that the Internet may reduce the human interface between customers and suppliers.

Hotel Websites become increasingly important (Jakovic and Galetic 2014). The potential benefits of Web-based marketing in improving firms' performance have encouraged many hospitality firms to harness such technologies (Gray et al. 2000). According to Jakovic and Galetic (2014), marketing and commercial activities offered on hotel Websites have a significant impact on the hotel's commercial success. O'Connor and Frew (2001) argued that

consumers make reservations and received tickets at home via hotel Websites to minimise the time spent on waiting and planning and maximise time on enjoyment. According to Murphy et al. (1996) the most effective hotel Webpages are those that provide the consumer the easiest, most satisfying access to relevant information. As more customers now book hotel rooms through Websites, Law et al. (2009) argues that the perceived image and usability of a hotel Website by a customer directly influences their purchase intentions. The Internet and Web technologies are generally considered as a multi-promotion tool (Leong 2001; O'Connor and Frew 2002; O'Connor and Frew 2004).

The fourth element in the marketing mix is 'place' (i.e. distribution, access or convenience). This refers to the means of providing a product at a place can be access conveniently by consumers. In this context, place does not just denote the location of tourist facilities or attraction sites. It represents the location of all the points of sale that offer access to tourist products for all prospective customers. Greenyer (2006) emphasised that customers increasingly demand personalised, relevant communications from business organisations. An example for the traditional ways in which 'place' or convenient access is established for prospective customers of a particular hotel is via travel agents. However, since the late 1990s, the internet has revolutionised the concept of convenient access (i.e. place) by bringing products directly into the homes of millions of prospective customers'. Nowadays, computerised reservation/booking systems (CRS) are widespread techniques to create the convenient access for hotel customers.

Distribution is another important use of ICT in hotels. Since the late 1990s, using ICT solutions as distribution channels has attracted many authors within the tourism industry. Moreover, the Internet has significantly changed how hotel firms distribute their products (Ip et al. 2011). O'Connor and Frew (2004, p.179) state that "electronic channels play an increasingly important role in hotel distribution, with most companies utilising a portfolio of channels to reach the customer in an effective manner". Currently, the tourism distribution channels network is extremely complex (Fountoulaki et al. 2015). According to Paraskevas et al. (2015), there is a growing importance of social media and mobile for today's distribution market. With the rapid development of the Internet, hotels commonly sell their rooms by taking advantage of the Internet platforms as popular distribution channels (Sun et al. 2015). Utilising the Internet as a reservation method can be valuable for both hospitality firms and customers (Scaglione and Schegg 2015). Guests can now make room reservation online anytime anywhere as long as there is an electronic device with Internet access (Nwakanma et al. 2014). Fountoulaki et al. (2015) identified an increased importance of

modern ICT systems; such as, social media and mobile for contemporary distribution market. Garces et al. (2004) found that the most important effect of using ICT in commerce by Spanish hotels was to increase access to overseas and local markets. However, a recent survey of Swiss hotel sector by Schegg et al. (2013) shows that direct booking channels remain the dominant sale tool.

Furthermore, Beldona and Cobanoglu (2007) emphasise that Internet access is a fundamental part of the hospitality service. ICT can provide means to access markets on a global basis (Sahadev and Islam 2005). By surveying 128 Egyptian hotels, Essawy (2011) suggested that the impact of the Internet will urge hotels to redefine markets and enhance marketing activities. These findings provide an optimistic view regarding the way in which hotels will be marketed via the Internet in the future. The Internet and Web technologies are generally considered as a distribution channel as well as a multi-promotion tool (Leong 2001; O'Connor and Frew 2002; O'Connor and Frew 2004).

However, these systems make the competition fiercer for the hospitality industry (Sun et al. 2015). Yilmaz and Bititci (2006) have argued that measuring the performance of the distribution channel within the context of a value chain needs more research. The awareness of new opportunities within the tourism distribution channels is essential for tourism professional in order to remain competitive and successful (Fountoulaki et al. 2015). Berné et al. (2015), fore example, highlighted the effect of the growing use of ICT among intermediaries of the tourism sector on business performance.

Therefore, ICT can provide hotel firms with a sustained competitive advantage (Lee et al. 2003; Ham et al. 2005; Lam et al. 2007; Piccoli 2008; Karadag and Dumanoglu 2009). According to Richard (2013), a significant part of tourism success is attributed to the adoption of ICT. Because of the increasing benefits from ICT, hospitality firms have gradually invested more in ICT to increase overall efficiency (Kim et al. 2008b) and to develop effective marketing strategies (Law and Jogaratnam 2005; Piccoli 2008). For example, in a study of ICT in small Scottish hotels, Buick (2003) found that around 80% of them used PCs and the Internet to market their business. Buick (2003) found that even among hotels that did not have a computer, most had a Webpage to promote and advertise their business.

ICT support companies to reach of customers quickly and without geographical limitations and can produce added value for these customers by allowing a quick launch in the market of new services and products – including Web catalogues with prices and descriptions– for a better availability to end customers (Paço and Pérez 2015). ICT can provide many

advantages for hotels of all sizes (Aziz et al. 2012). One of these advantages is higher quality customer relationships as a result of the possibility of personal dialogue and contact services with the customer (Wang 2008). The positive influence may also include networking to share resources and information within and across the hotels to improve check-in, billing, transactions, and check out (Ansah et al. 2012).

Hotel establishments are progressively making use of ICT to reach out to potential customers in the fastest and most effective way (Leong 2001). As a result, these technologies may affect marketing performance in two ways:

- Directly, by achieving direct sales; and
- Indirectly, by providing higher levels of customer's satisfaction through supporting the hotel relationships with its customers.

With all these advantages of ICT on the hospitality industry, there should be a budgetary allocation to accommodate the procurement of hardware and networking devices, software and installation, training of staff on the use of systems, security headaches, routine maintenance, and on-site systems administrator. These procedures may bring negative consequence to the hotel managers and owners (Ansah et al. 2012). Some influences of a new ICT system may have dysfunctional consequences for users, which may interrupt the main objective for adopting the new ICT system. Effects of a new ICT system include changes in stress, quality of work life, job satisfaction, and other work related results with significant consequences for the efficiency and productivity of operations (Mathur 2015).

It is a challenge for any organisation to adopt new ICT solution and learn how to use it to create a better system and at the same time it is hard to select which ICT systems are the most important one (Aziz et al. 2012). Hotels need time to recognise the competitiveness potential of every new resource, and once they start to implement it its importance may change over time (Mihalič et al. 2015). The adoption of ICT systems can restructure the work environment and modify job design. The lack of training is one of the main barriers to full exploitation of ICT (Murphy 2013). Moreover, some hotel administrators are reluctant to adopt ICT because of the technophobia (Siguaw et al. 2000). Therefore, perhaps, tourism is behind in ICT adoption than other industrial sectors (Reino et al. 2013). The most influencing factors that can determine ICT adoption and marketing performance in hotels are discussed it the next section.

3.6 Factors Determining ICT and Marketing Performance in Hotels

The firm's tendency to adopt ICT is an indicator of its tendency towards innovativeness, and also echoes its capability to assess, accept and implement new technologies (Nwakanma et al. 2014). A hotel with a high level of ICT adoption propensity will be an early adopter of the new technology and will therefore be a risk taker. The adoption propensity of an organisation is powered by its belief and attitude in innovativeness as a source of competitive advantage. This belief is in turn based on the factors that outline the competitive environment of the organisation. Additional, an organisation's adoption propensity is also based on factors related to its internal capabilities and requirements. Thus an organisation's propensity to adopt a new technology is influenced by a number of factors, both external and internal.

The level of ICT developments in the hospitality industry may differ across the characteristics of hotels and their customer segments (Karadag and Dumanoglu 2009; DiPietro and Youcheng 2010). The findings of the study Ngatia et al. (2014) in Kenya's hotel industry indicate the fact that the five factors are significant for ICT adoption in different ways. The factors are; the organisation resources, hotel size; manager characteristics, employees characteristics, and competition. Some of these aspects have been found to have significant influence on the adoption of ICT by Reino (2009) in a research conducted among mangers in the Scottish hospitality industry. The literature also expresses an influence of some hotel features on marketing performance. Hotel location, size, and facilities are among the most-mentioned feature in the previous literature.

Hotel size and category are the most commonly examined determinants of ICT adoption (e.g. Siguaw et al. 2000). Hotel size may have a significant effect on ICT adoption propensity. Hotel size can also influence the marketing performance. For example, a survey of 165 Australian hotel managers by McManus (2013) found that large hotels with a decentralised structure depend more on customer-focused accounting and marketing measurements. Hotel size can be measured by the number of employees or the number of rooms.

Some practical studies suggest that there is a positive relationship between hotel size and ICT adoption (Hitt et al. 1990; Siguaw et al. 2000; Schegg et al. 2002; Sahadev and Islam 2005; Khemthong 2006; Murphy et al. 2006; Bayo-Moriones and Lera-Lopez 2007; Bocquet et al. 2007; Reino 2009). Research has proposed that firm size correlates positively to ICT adoption, as economies of scale increase the possibility of ICT utilisation and larger firms have a stronger necessity for such utilisation to support their business strategy. Effective

adoptions of many ICT systems need a substantial investment of resources. Deficiency of resources may affect the inclination of small hotels to invest in expensive ICT systems and thus large hotels can probable more inclined to ICT systems. The risky natures of investing in new ICT systems may also make small hotels wait till such systems become more stabile before investing in it. Additional feature of the hotel size that can affect ICT adoption propensity is the inclination to change within the organisational culture. Large hotels have been found to be more resistant to change than small ones. This fact tends to propose that large hotels will be less inclined to adopt ICT systems than small hotels if the investment required is not a consideration.

The scope of facilities that the hotel has can also affect ICT adoption propensity. Since ICT systems support an effective integration of activities within organisations, hotels with wide range of facilities and activities may find more use in ICT adoption than hotels with a relatively lesser span of facilities. In the hotel industry, Siguaw et al. (2000) argued that the larger and more complex a hotel establishment, the greater its dependence on ICT. Singh et al. (2006) suggested that the ICT solutions vary according to the category of hotels in Korea. Khemthong & Robert (1999) examined the impact of three sets of characteristics: organisational, technological, and environmental, to the adoption of Internet based marketing activities (IWMA). The results of this study indicate that the Thai hotels that adopted IWMA early on are larger in size, and seem better able to adopt IWMA than hotels that have adopted IWMA recently.

Furthermore, there is some evidence in the literature that the facilities offered by hotel establishments and the services associated with these facilities lead to better marketing performance. For instance, Emir and Kozak (2011) identified four major elements as the most-influential factors on guest intentions of future repeat visits to the same 'Five-star' hotels in Antalya, Turkey. These were the Front-Office services, employees, housekeeping, and food and beverage services. Hotel performance may also be affected by ownership (e.g. Sin et al. 2005) and the variables related to hotel guests such as; the purpose of trip, age and gender (e.g. Wilkins 2010).

Moreover, the tendency of hotel firms to adopt ICT increases with the hotel category, which specifies the economic class of the hotels' target customers (e.g. Siguaw et al. 2000; Sahadev and Islam 2005; Orfila-Sintes et al. 2005; Šerić and Gil-Saura 2011). Orfila-Sintes et al. (2005) demonstrate that higher-category hotels are more innovative than lower-category hotels. Luxury hotels that target higher economic classes of customers may be more motivated to utilise ICT systems to enhance their image and because of their customer

requirement. Additionally, hotels of a higher category will be better equipped in terms of resources for utilising new technologies. Thus, the current practices followed by upscale hotels can be considered as a reference in this industry. In a study of 200 three, four, and five-star hotels in Spain, Ruiz-Molina et al. (2011) found that three-star hotels attempt to catch up with the practices of upscale hotels.

Nevertheless, previous research tends to use an aggregated measure of technological innovation that does not allow identifying the specific ICTs solutions, which differentiate upscale hotels from their competitors in lower categories (Ruiz-Molina et al. 2011). Larger organisations may have multiple levels of bureaucracy and this can obstruct decision-making processes about new ideas and projects. ICT adoption often involves close coordination and collaboration that can be easily accomplished in small organisations. Further, there exists empirical evidence against the positive relationship between hotel size and ICT adoption (Hashim et al. 2010; Oliveira and Martins 2010). For example, the findings of Hashim et al. (2010) questioned the relationship between Internet adoption by Malaysian hotels and their size. Moreover, there are some ICT solutions that do not differ across hotels with different categories, e.g. cell phones and backup systems (Ruiz-Molina et al. 2011).

The age of the hotel may also influence ICT adoption. Researchers suggest an influence for the age of hotel establishments on the adoption of ICT (Hollenstein 2004; Sahadev and Islam 2005; Murphy et al. 2006). Some of the researchers argued that it may be easier for new hotels to adopt new technologies that required a complete refurbishment of the existing system. For example, the study of Sahadev and Islam (2005) indicated the age of the hotel is a major factor that influences ICT adoption, as new hotels find it easier to adopt new ICT systems that need a complete revamp of the existing system. Moreover, Hoontrakul and Sahadev (2004) argued that property management system may required a large scale reorganisation of the hotel which is much easily accomplished in relatively new hotels and will be highly resisted in old ones. However, Reino (2009) indicated that there was no positive association between the use of ICT and the hotel age.

In the hospitality industry, the geographical location of a hotel also has a major influence on its profitability and operations (Nambisan and Wang 2000). Van der Borg et al. (1997) claimed that the adoption of ICT in small and medium-sized Italian firms is influenced by their location (rural or urban). Geographical location of a hotel controls the size of its market, the profile of its visitors, and the intensity of competition that it has to face. These three variables may have an impact on the ICT adoption propensity of a hotel also (Nwakanma et al. 2014). If a hotel presumes that there is a set of ICT systems that provides

greater competitive advantage considering these three aspects, it will then be more tending to adopt these systems. Therefore, based on the size of the market, the profile of a hotel's visitors, or the intensity of competition, hotels may vary in their levels of ICT adoption propensity.

The geographical location of a hotel deeply controls the profile of its visitors and competitors (Sahadev and Islam 2005). Therefore, the level of ICT developments in tourism may vary between regions, countries and continents (e.g. Buhalis and Deimezi 2004). However, Schegg et al. (2002) analysed 125 Swiss hotels and they found no significant differences across geographic or linguistic region.

The market size, in terms of the number of tourists who visit the location, is a significant factor that influences ICT adoption propensity (Nwakanma et al. 2014). Hoontrakul and Sahadev (2004) argued that hotels in smaller underdeveloped destinations may need to employ the Internet and other ICT based systems like the GDS to a larger reach to the global market than hotels located in developed destinations. Hotels in locations with a high percentage of tourists from high Internet penetration countries are more willing to adopt the Internet based technologies that allows them to improve their market reach in a much faster manner (Nwakanma et al. 2014).

Moreover, the literature suggests a relationship between the competitiveness of a destination and the competitiveness of firms located in it (Claver-Cortés and Pereira-Moliner 2007). Therefore, if a hotel is located in a more competitive destination with more advanced marketing strategy, this hotel will most probably has a better chance of improving its marketing performance. This also emphasises the degree of interconnectedness between tourism businesses in a particular destination. Some inventiveness undertaken by the destination itself can also have an effect on the competitiveness of the accommodation establishments in this destination (Claver-Cortés and Pereira-Moliner 2007).

The competition level among the hotels in a location can also affect ICT adoption propensity of a hotel. The general occupancy rate in the location is an indicator of the competitive strength among the hotels in a location. High levels of occupancy rate at a location suggest that the competition is low, and the hotels can expect to get their rooms filled with relative ease while low levels of occupancy point towards higher levels of competition to attract customers between the hotels in the location. High levels of competition may prompt the hotels to aggressively use ICT based technologies both for attracting customers as well as to increase the efficiency of its operations.

Other factors that may influence ICT adoption by hotel establishments may include a hotel's customer profile, management and ownership type, as well as management and workforce skills (e.g. Siguaw et al. 2000; Garces et al. 2004; Sahadev and Islam 2005; Bayo-Moriones and Lera-Lopez 2007; Murphy and Kielgast 2008; Reino 2009; Bilgihan et al. 2011). Paraskevas and Buhalis (2002) found that US hotels that belong to hotel chains are better to adopt new technologies and more innovative in comparison to hotels that do not belong to any chain. Siguaw et al. (2000) found that Chain-affiliated properties typically adopted more technologies than independent hotels. Berezina and Cobanoglu (2010) assessed the importance and performance of key in-room technology amenities and found that the importance of these amenities differs depending on the gender of the traveller.

3.7 Main Themes in the Literature

The hospitality industry increasingly invests on ICT systems over the past two decades (Sirirak et al. 2011; Paço and Pérez 2015). High customer expectation and strong competition have enforced many hotels to explore innovative ways to attain competitive advantage (Sirirak et al. 2011). Some of the responses by hotels include investment in the latest technology in room management, room reservation, inventory and procurement systems, telecommunication, wireless Internet, email, hotel Websites, electronic transactions and guest experiences (Aziz et al. 2012; Sirirak et al. 2011). The reasons for ICT adoption in the hospitality industry are the fact that many new destinations have appeared which are challenging the traditional ones (Bethapudi 2013); the realisation by hotel management that a brand by itself is not enough (Knowles 1998); the fact that customers are now more demanding and are more sophisticated and they are requesting high-quality services and products and value for their money (Bethapudi 2013); the perceptions that the hotels are the most under-automated segment of the international travel and tourism industry (Bethapudi 2013); and the notion in the hospitality community that hotel sector requires to accelerate ICT implementation (Mihalič and Buhalis 2013).

In developed countries, many hotels are taking advantage of ICT to achieve competitive advantage and superior performance (Li 2012). For example, integrating the centralised reservation system (CRS) can faster communication, improve cost effectiveness, efficient management of data and effective exchange of information (Mihalič et al. 2015). The CRS of a hotel can be connected to airline CRSs to construct a global reservation system to allow potential guests and travel agents to make direct reservations. ICT has been transforming the hospitality industry internationally by evolving a whole suite of software applications in an

attempt to gain excellent guest experience, improved customer satisfaction, room occupancy rates, reduced operational cost accomplish superior performance in revenue (Sirirak et al. 2011). With the numerous positive impact of ICT in businesses, it is hard to imagine a modern business functioning without ICT adoption. For these reasons, hotels in Jordan cannot solely rely on the quality of Jordan natural and historical heritage. They need to adopt the latest technology and implement current trends in terms of appropriate services being presented to hotel guests.

However, Bethapudi (2013) argued that there are some threats in the midst of these successes. Studies researching the influence of ICT have sometimes led to contradictory results and doubts about the benefits of ICT on performance (Paço and Pérez 2015). Currently, adapting ICT systems is no more a distinctive characteristic by itself; only an efficient and effective integration and usage can help in obtaining a competitive advantage (Mathur 2015). Moreover, there are many features which can impact the availability, interconnectivity and use of these ICT systems in hotels. In this research, therefore, the researchers focus not only on the level of ICT availability, but also on the connectivity and usage level of ICT system in upscale hotels in Jordan.

Although the role of ICT in hospitality has been researched, previous research has not yet addressed the impact of ICT on marketing performance. According to Buhalis and Mamalakis (2015), marketers need to evaluate the effectiveness of different ICT solutions. Marketers are unable to precisely calculate the performance of their marketing activities. Hotel managers need justifications for escalating ICT budgets for making the right decisions. There is limited research on the impact of these trends on marketing performance, and so far the theme in Jordan has not yet been much discovered. Therefore, the justification for researching the impact of ICT on this sector takes into account the fact that, with the growth of competitiveness in the hospitality industry, maximising the efficiency and effectiveness of marketing performance in hotels is an important objective. Consequently, increased competitions have pushed hotels into a search for more effective marketing strategies, many of them choosing ICT adoption as a way of gain and maintain satisfied costumers.

3.8 Gaps in the Literature

By reviewing the literature it is emerges that;

Firstly, the specific literature concerning the effects of ICT on hotels was concentrated in some particular research areas (e.g. competitive advantage), and to the knowledge of the researcher, there limited research on the effects of ICT on marketing performance of hotels.

Although marketing is perhaps the most affected business function from the ICT revolution (O'Connor 1999; Yu and Law 2000; O'Connor and Frew 2002), the research focussing on the relationship between ICT and marketing performance did not receive sufficient attention. By analysing 88 ICT-related research articles within hospitality industry from 1999 to 2008, (Ip et al. 2011) found that only 17% of them were related to marketing. The reason for this, according to Sigala (2003), is that service organisations tend to be less marketing oriented than manufacturing organisations as well as being more function orientated than marketing orientated. While most hotels seemed to have successfully merged ICT into their marketing strategies, the level of commitment appears to be insignificant (Connolly 2000; Leong 2001).

Therefore, Berezina and Cobanoglu (2010) argue that additional research on the topic of ICT's impact on hotel marketing assists in delineating ICT solutions that hotel management should consider in order to increase guest satisfaction. Moreover, it is important to distinguish which ICT component is the most significant determinant of an eMarketing strategy (Ip et al. 2011). Hudson (2008, p.258) states that; "As tourism markets and the media have grown more complex and fragmented, consumers find themselves in an ever more confusing marketing environment. Tourism marketers must address this situation by conveying a consistent, unified message in all their promotional activities".

The phenomena of the ICT solutions implicate the ability to shift market dynamics from local into global level. Therefore, the needs to investigate ICT adoption as well as its integration and usage in hospitality marketing models are inherent. From that perspective, this research examines the impact of ICT on marketing performance in Jordanian hotels. First, it is argued that hotels need to raise their awareness of the potential of ICT to improve their marketing performance and to start to integrate it into their practice and strategy. Second, although hotels are different in size, geographical location, and ownership, as well as in their experiences in ICT, sooner or later they will all be aware of the significance of ICT capabilities to increase marketing performance. Therefore, the purpose of this research is to survey the impact of ICT in improving the marketing performance of a hotel firm, in general, and to consider the effect of hotel's characteristics on ICT adoption.

Secondly, the literature on the marketing performance of hotels focused on certain research areas (e.g. marketing strategy, and guests' satisfaction and loyalty), and, to the knowledge of the researcher, there are few studies that evaluate marketing performance within the hospitality industry.

Marketing performance is one of the key concepts in this thesis. Although it seems to be a simple concept with little disagreement about it, the challenge in defining it clears when one attempts to measure it. Indeed, marketing performance is a dynamic (e.g. Dickson 1996) and multidimensional (e.g. Bonoma and Clark 1988) process. Regularly, performance is considered by its effectiveness and/or efficiency. While the literature covers some measures of marketing performance in hotels (e.g. costumer satisfaction and costumer loyalty), it does not consider the more comprehensive models for marketing performance found in other industries. In order to survive and succeed in the hospitality industry, efforts must be made to improve both guest satisfaction and operational performance through the adoption and use of ICT systems (Jones 1999). By reviewing the relevant, published literature research; the author found that the measurements used to evaluate marketing performance vary according to researchers' individual standpoints and experiences.

Finally, although many developing countries turned to the hospitality industry and tourism as an economic development strategy shortly after achieving political stability (Lin et al. 2010), nearly all of the research studies about ICT's effects on hotels and the marketing performance of hotels have been conducted in developed countries

Many ICT tools have been implemented in the tourism industry in both USA and Europe for more than four decades (Ma et al. 2003), therefore, the majority of research on the effects of ICT on the tourism hospitality was mainly conducted in these states (Sigala 2003; Sirirak et al. 2011). Sirirak et al. (2011, p.36) states that "studies in a developing country context are limited in number, and research in this context would be useful to hotel management as the tourism and hospitality industry in these countries, especially in Asia, is growing rapidly".

Generally, the literature on the effects of ICT on hotels did not consider Jordan as a case study. Given the fact that Jordan is considered a tourism destination and hospitality industry is significant sector for Jordan economy. The relationships between ICT systems availability, integrations and usage marketing performance in Jordanian hotels along with the factors that affect these relationships are the gaps that this research seeks to address. With this in mind, the present research is based on the context of the hospitality industry in Jordan, using data collected through a survey on the availability, connectivity and the usage of ICT in hotels.

These identified gaps in in the literature will feed into the aim and design of this research project as it will presented in the next chapter. The aim of this research is to achieve an in-depth understanding of relationship between ICT and the marketing performance of Jordanian hotels. This chapter examine the broad literature on the topic of ICT and marketing performance in the hospitality industry. Next chapter discusses the theoretical framework and hypotheses development for this research.

Chapter 4: Theoretical Framework and Hypotheses of Study

4.1 Introduction

Having argued in the previous chapter that there are some gaps in in the contemporary literature surrounding the impact of ICT on marketing performance within the hospitality industry, the requirements to investigate relationship between ICT adoption and marketing performance in the hospitality industry are inherent. The literature review presented in the last chapter has revealed three critical areas in the relationship between ICT and marketing performance within the hospitality industry's context: a) the limitations in evaluating marketing performance; b) selecting ICT dimensions; and c) the limitations in the developing countries context. Therefore, this research aims to address these areas.

This chapter introduces the theoretical framework and hypotheses development for this research. This chapter is to address the third objective of this research (i.e. to create a research framework for data collection and analysis). As Figure 4.1 explain, this objective can be achieved depending on the appropriate models for measuring ICT capabilities combined with the appropriate marketing metrics for hospitality providers. This chapter support the research instrument by developing items measured and scales for both ICT and the marketing performance.

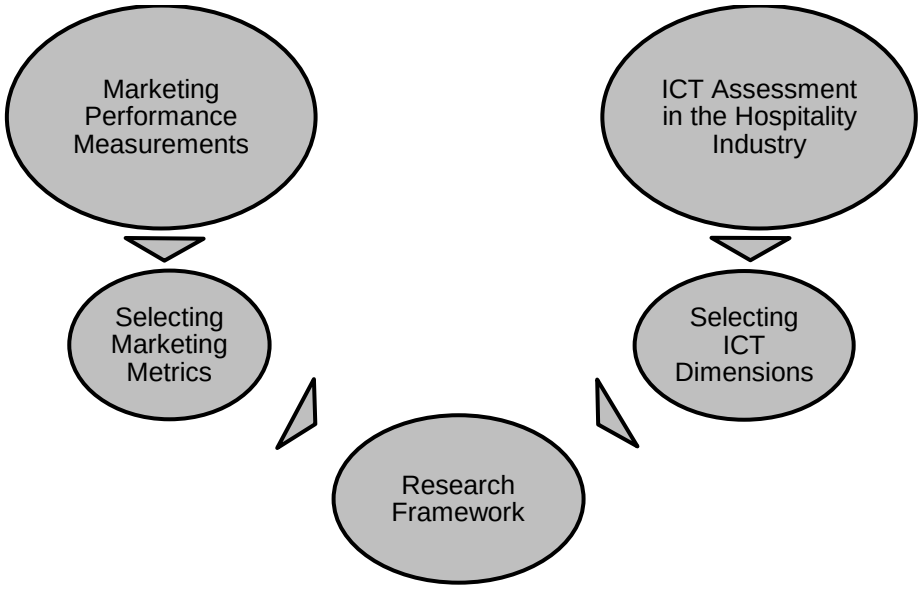


Figure 4.1 Building Research Framework

Thus, this chapter is structured in five parts. It begins with presenting marketing performance measurements including a description of marketing performance models in general and marketing metrics in particular (Section 4.2). The different benchmarks of marketing performance have been also provided in this section. The second part in this chapter (Section 4.3) is a description of the selected model which was used to evaluate marketing performance in this research. The logic of the selection process as well as the main marketing metrics is also discussed. The third part of this chapter (Section 4.4) examines approaches of ICT assessment and summarises the literature of assessing ICT within the hospitality industry. The fourth part in this chapter (Section 4.5) is a description of the selected items and scales which was used to evaluate ICT in this research. The last part of this chapter (Section 4.6) discusses the research framework questions, and hypotheses.

4.2 Marketing Performance Measurements (MPM)

Managers of marketing departments in business establishments are under increasing pressure to demonstrate the contribution of their departments to the overall performance of their institutions (Clark 2001; Miller and Cioffi 2004; Grewal et al. 2006; Petersen et al. 2009; Da Gama 2011b; Buhalis and Mamalakis 2015). The challenges facing marketing managers stand in the interpretation of the increasing size of marketing activities expenses alongside the need to demonstrate the efficiency and the effectiveness of these activities. In order to meet these challenges, marketing departments are forced to measure their performance and subsequently to reveal their contribution to the overall business performance. Herremans and Ryans (1995, p.52) stated that "marketing has advanced to the stage at which it has become a critical factor in determining the success or failure of the organisation; therefore, accountability is essential."

The trend of measuring marketing performance seems to be a world-wide issue (Barwise and Farley 2004). For evidence, the Marketing Science Institute has presented marketing performance measurement as one of its research priorities since 2000 (Eusebio et al. 2006; Clark 2007; Ambler 2008). In the UK, the marketing metrics project has attracted considerable industry support (Clark 2007; Da Gama 2011b). Nevertheless, many business professionals still consider marketing as a highly qualitative field with few things that can be measured; however, recent evidence opposes this point of view (Da Gama 2012).

In the relevant literature, measuring marketing performance has always been a central concern in marketing (Parker 1962; Phillips and Moutinho1998) and remains a vital issue for

many corporations (Grewal et al. 2006; Clark 2007; Da Gama 2011a). There is practical support for the theorised relationship between marketing performance measurement (MPM) and firm overall performance (Clark and Ambler 2001). For example, O'Sullivan and Abela (2007) confirmed this relationship within Irish firms. Based on those findings, it is argued that any comprehensive program to evaluate and improve the overall performance for any firm should include an expansion of marketing performance measurements. However, despite the popularity of measuring overall business performance (e.g. Neely 2002; 2007) and the relationship between marketing and business performance (e.g. Morgan 2012), there is limited research on the measures employed to assess marketing performance. In this respect, Ambler and Kokkinaki (1997) examined more than 1300 issues of seven key marketing journals, and they found that less than 12% of the investigated articles studied the evaluation of marketing performance.

Moreover, marketing performance is the result of multiple functions, processes and conditions both within and outside the company (Clark 2001; Da Gama 2011b). This makes it even more challenging to interpret the links between cause and effect. Many academics and managers do not have an all-inclusive understanding of the marketing performance process and the factors that may affect MPM design within businesses (Morgan et al. 2002; Zubair and Imran 2011). Despite the separation between financial and non-financial measures (Ambler et al. 2004), marketing performance as a solid and clear comprehensive tool by which the corresponding merits can be calculated, has obtained insufficient attention in the literature (Ambler and Riley 2000; Da Gama 2011a).

Within the tourism industry, evaluating general business performance has long attracted practitioners and researchers (Yilmaz and Bititci 2006). According to Kayar and Kozak (2010) measuring performance against competitors became a strategic issue for destination management. Most of the theoretical and empirical studies concerning tourism marketing performance measurement are related particularly to the hospitality industry (e.g. Kim and Kim 2005; Sin et al. 2005; Emir and Kozak 2011; Oh and Hsu 2014). However, there are few studies on MPM in the tourism industry when compared to studies done for other industries.

4.2.1 Theoretical background: Why the growth in use of marketing metrics?

In order to understand the nature of MPM, its importance and how it emerged and grew, we must investigate the theoretical background that shaped the backbone for MPM. Ambler et al. (2004) listed five theoretical perspectives which may account for the growing interest in

MPM. These theories are: (i) the control theory; (ii) the agency theory, (iii) the concept of brand equity; (iv) the concept of market orientation; and (v) the institutional theory. Below is a brief discussion of these theories and their reflections on MPM.

4.2.1.1 Control Theory

Management control denotes each and all of the processes used by an organisation to confirm that organisational goals are accomplished in a desired manner and that the organisation acts appropriately in response to changes in its environment. Control in management involves setting standards, measuring real performance and taking corrective action. Control theory supposes that organisations have a strategy and a well-defined set of plans (transitional stages) with which real performance can be compared (Barwise and Farley 2004).

The central concept in the control theory is that the combination between unexpected events (both good and bad) from one side, and the predictable performance (strong or weak) from the other side, creates the final results to be better or worse than expected. However, Merchant (1998, cited in Ambler et al. 2004, p.476) describes control as being both reactive like 'a cybernetic feedback loop' and proactive in anticipating difficulties before they can damage performance. In this context, performance measurements are used to evaluate past performance as well as to develop future strategy and implementation.

In marketing, control theory proposes the necessity of sequent feedback about marketing programs for analysing, planning, implementing, and controlling these programs (Jaworski 1988; Kotler et al. 2009). Jaworski (1988) emphasised the idea that monitoring marketing performance provides informational instruments that support the production of desired results when executing marketing plans. Measuring marketing performance, therefore, is a realistic process by which marketing departments can acquire knowledge on how to advance their performance by adjusting the utility levels of the marketing mix (Hite and Fraser 1988). Marketing metrics can be used to bring performance back to plan (Ambler 2008).

Kotler et al. (2009, p.800, tab.22.3) catalogued four kinds of marketing controls: (i) the 'annual-plan control' or the effectiveness which indicates whether the marketing goals are being achieved; (ii) the 'profitability control' which means whether the organisation is making or losing money; (iii) the 'efficiency control' which evaluates and improves the efficiency of the marketing expenditures; and (vi) the 'strategic control' which distinguishes whether the organisation is pursuing its best opportunities. Ambler et al. (2001) emphasised

that marketing performance measures or metrics should be comparative with previous periods, plans, and/ or competitors.

4.2.1.2 Agency Theory

Another rational perspective for performance evaluation is taken by agency theory which is related with solving problems that can occur in agency relationships; that is, between principals (e.g. shareholders) and the agents of the principals (e.g. CEOs). The dilemma here occurs when sometimes the agent is driven to act in his own best interests rather than the principal's interests. Therefore, the emphasis here is on the contractual relationship between the agent and the principal who has been appointed to work for the agent.

Agency theory presumes that both the agent and the principal are rational actors. Thus, in order to enforce the contract, the principal needs subsequent data on the extent to which his objectives have been met. In other words, metrics are important for the principal to evaluate performance (Ambler et al. 2004). This is related to control theory; however, the agent will transmit the information that is positive for him to the principal to such extent that the benefit obtained from this disclosure does not exceed the costs of obtaining and disseminating this information.

Therefore, agency theory supports an economic perspective of how information will be spread vertically within the organisation (Ambler et al. 2004). In this context, the issue related to performance evaluation is the issue of incentives, specifically, on the terms of the contract to be designed to incentivise the agent to perform and communicate in a way that most likely fit the principal's objectives.

In principle, agency theory fits the context of MPM well by focusing on the contract between an agent and a principal. However, if measuring the results (outputs) of marketing performance effectively is difficult; there will likely be more reliance upon marketing expenditure controls (inputs). This implies that MPM will be mainly for justifying prospective expenditure (budgets) and past activities.

In circumstances where there is a great difficulty in effectively measuring marketing performance, Eisenhardt (1985) emphasises the importance of the efficiency of behaviour based forms of measurements compared to outcome-based forms of measurements. Nilakant and Rao (1994, p.653) stated that "agency theory looks at the relative merits of behaviour-based contracts vis-à-vis outcome-based contracts as a means of efficiently ensuring the fidelity of the agents".

Agency theory has been criticised for its focus on the contract between corporate management and shareholders rather than the contract between a functional management (e.g. marketing) and the corporate management (Barwise and Farley 2004). Moreover, MPM is largely internal to the organisation, even though, Ambler et al. (2001) argued that marketing metrics should be communicated to shareholders and to be subject to commercial confidentiality.

4.2.1.3 Brand equity

Brand equity was introduced as a concept in the late 1980s as a reaction for the short-termism and narrowness of financial measures of performance (Barwise 1993). In marketing, brand equity is a broadly used impression for the 'intangible marketing asset' (Aaker 1996; Clark and Ambler 2001). Srivastava and Shocker (1991, p.5) explained it as:

> A set of associations and behaviours on the part of a brand's customers, channel members and 'Parent Corporation' that permits the brand to earn greater volume or greater margins than it could without the brand name and that gives a strong, sustainable and differential advantage.

Organisations can measure brand equity financially and/or non-financially (Keller 1993; Ambler 2008). The financial measures (i.e. accounting measures) may be stated as currency values or as ratios of currency values. Therefore, there are two kinds of brand equity; organisational brand equity and customer brand equity (Kim et al. 2008a). Organisational brand equity (i.e. financial-based brand equity) focuses on financial measure such as; market value, and potential earning. However, marketers must recognise the difference between brand equity (i.e. the intangible asset) and 'brand valuation' which refers to the financial value of that asset (Kotler et al. 2009, p.446).

Customer-based brand equity involves a combination of both behavioural and attitudinal measurements (Keller 1993; Srivastava and Shocker 1991) and it has been argued that it cannot validly be stated by a single number (Barwise 1993). Recognising that the interpretation of intangible assets needs a large and increasing proportion of shareholder value has reinforced the interest in brand equity. Thus, plenty of metrics that measure brand equity and its various dimensions have emerged, especially, as a 'balanced scorecard' of performance (Barwise and Farley 2004).

One of the top issues regarding MPM in the hospitality industry is 'customer-based brand equity' (Kim et al. 2008a). Moreover, the destination brand attracts more attention in the literature destination marketing (Baker and Cameron 2007). Prasad and Dev (2000: 24) define brand equity in the hotel context as "the favourable or unfavourable attitudes and perceptions that are formed and influence a customer to book at a hotel brand". However, Šerić et al. (2014) argued that there is no agreement in what this term means and what the best way to measure it.

In the literature, there are many empirical and conceptual studies regarding 'hotel brand equity' (e.g. Kim and Kim 2005; Kayaman and Arasli 2007; Kim et al. 2008a; Kimpakorn and Tocquer 2010; So and King 2010; Xu and Chan 2010; Nam et al. 2011; Šerić and Gil-Saura 2012; Oh and Hsu 2014). Most of these studies adopted the conceptualisation provided by Aaker (1996) which comprises five brand equity components: (i) brand loyalty, (ii) perceived quality, (iii) brand image (iv) brand awareness, and (v) other proprietary brand assets.

4.2.1.4 Market Orientation

Tough competition is increasingly forcing organisations to be more market-oriented, which is one of the antecedents of the organisational culture that shapes the way of measuring marketing performance. Many definitions for market orientation have been emerged; for example, Kohli and Jaworski (1990) outlined it as a unique trait of organisational culture that emerges from the organisation adoption of the marketing concept. Moreover, Deshpandé and Farley (1999, p.218) defined marketing orientation as ''the set of cross-functional processes and activities directed at creating and satisfying customers through continuous needs-assessment''. In the hospitality context, marketing orientation is the philosophy of providing guests with a better value and unique service for a price the guest is willing to pay (Walker 2009).

However, most definitions of market orientation involve an arrangement of 'market sensing' and proper, cross-functional reactions to the resulting data. MPM here is a part of 'market sensing' (Ambler et al. 2004; Ambler 2008). The literature suggests that market-oriented organisations tend to achieve superior performance (e.g. Narver and Slater 1990; Jaworski and Kohli 1993; Morgan et al. 2009). Within the hospitality industry, there is imperial evidence on the positive relationship between market orientation and both marketing performance and the financial performance of a hotel (Sin et al. 2005; Sin et al. 2006).

Consequently, the presence of organisation-wide standards for market orientation is a core feature of a market-oriented organisational culture (Homburg and Pflesser 2000). These standards influence the types, the content and the dynamics of 'information expose' to the top management (Ambler et al. 2004). Market-driven organisations require gathering and disseminating market intelligence within the organisation (Kohli and Jaworski 1990). Therefore, the corporate culture of market orientation affects the measurements applied for verifying performance (Jaworski, 1988; Webster 1992). The extent to which top managers are involved in MPM depends on the extent to which their organisations are market-oriented (Kohli and Jaworski 1990; Narver and Slater 1990; Jaworski and Kohli 1993; Day 1994).

There are two important components of market orientation; customer orientation and competitor orientation (Llonch et al. 2002). Customer-orientated companies focus on the internal and external needs of their customers. Consumer orientation culture creates and monitors standards of customer satisfaction and strives to meet customer needs and expectations of the company's products or services. In this context, (Kotler and Armstrong 2014, p.618) stated that "a company should view and organise its marketing activities from the consumer's point of view".

Competitor orientation, on the other hand, suggests that the organisation identifies its main competitors, both present and future, and appreciates their strengths and weaknesses in the short-term and their potential and possible strategies in the long-term (Narver and Slater 1990). Therefore, the primary attention for competitor-orientated organisations is to perform better than competitors (Llonch et al. 2002). Market orientation not only affects companies' behaviour but also how they evaluate successful performance (Slater and Narver 1994). For example, if the organisation is customer-oriented the MPM would be expected to be customer- based (Kokkinaki and Ambler 1999).

4.2.1.5 Institutional Theory

Finally, institutional theory suggests that organisational behaviour for companies is not only dependent solely on their historical and cultural values, but also upon the history and the cultural values of their industry sector. This suggests that successful business practices in one company will eventually become an institutional norm in its industry sector. This includes marketing performance that will encourage late-adopting businesses to further uptake successful measurements for their marketing performance (Ambler et al. 2004). Accordingly, information disclosure to top management about marketing performance can be predicted from the "perceptions of legitimate behaviour derived from cultural values,

industry tradition, firm history, popular management folklore and the like" (Eisenhardt 1988, p.492).

Clark (1999) suggested that marketing metrics developed incrementally, as proposed by institutional theory. Dobni and Luffman (2000) emphasise the relationship between the concept of market orientation and the institutional theory. The reason for this, as argued, is that "organisations with similar market orientations have a tendency or aptitude to engage in similar strategies when in the same industry, and the types of strategy chosen are related to the operational behaviours manifesting a market orientation" (Dobni and Luffman 2000, p.909).

4.2.2 The importance of marketing performance measurement

In business, knowledge is power. Therefore, the importance of marketing performance measurement is obvious; simply, it allows organisations to monitor their marketing activities and their respective outcomes, enabling them to achieve a higher level of effectiveness and efficiency in their marketing. High-quality MPM can indicate the thought processes of current and potential customers.

In general, business performance is measured with the intention to: (i) confirm whether the proposed strategy is being executed; (ii) communicate to employees the goals which they are expected to accomplish and whether they are achieving those expected goals; (iii) validate whether the proposed strategy is still valid; and (iv) simplify organisational and individual learning and improvement. Barwise and Farley (2004) argued that successful organisations need to use metrics, even if these metrics cannot 'yet' be proved empirically. Morgan et al. (2002) outlined that the selection of MPM standards is important not only for assessing the progress of marketing programs and strategies but also for the signals that they send to employees and managers about their desired behaviour. O'Sullivan et al. (2009) found that marketing performance measurement capability positively affects organisational performance.

Therefore, and depending on the previous theories, we can distinguish five functions for MPM as follow;

(i) Observer the overall organisational vital signs and provide an early indication of problems that may influence future performance;

(ii) Verify compliance with the non-negotiable criteria such as industry association standards and regulations;

(iii) Provide data input for planning, decision making and learning;

(iv) Support strategy execution by tracking the degree to which strategic marketing objectives and milestones are being accomplished; and

(v) Communicate marketing priorities and desired outcomes between managers and employees.

4.2.3 The history of marketing performance measurement

Historically, the first attempt to conceptualise and develop MPM was in 1965 by Sevin (1965) with his book 'Marketing Productivity Analysis.' Since then, several conceptual and empirical studies have endeavoured to examine this concept (e.g. Feder 1965). Based on a review of this history, Clark (1999) demonstrated that MPM has progressed in three consistent directions over the time: firstly, from financial to non-financial output measures; secondly, from output to input measures; and thirdly, from unidimensional to multidimensional measures. However, Da Gama (2011b) stated that the shifts from some paradigm of evaluation to others do not necessarily occur radically, but suggest the need to consider a wider set of guides.

In late 1970s, there was a huge boost within MPM toward multidimensional perspectives where two major approaches in MPM developed; 'marketing effectiveness appraisal' (e.g. Kotler 1977) and 'marketing audits' (e.g. Berry et al. 1991). These two approaches are discussed in more details below. Then, in the late 1990s, the concept of 'market orientation' (Kohli and Jaworski 1990; Narver and Slater 1990) expanded the perspectives about MPM. Recently, the amount and diversity of marketing measures offered to organisations has increased considerably.

4.2.3.1 Marketing productivity analysis

The first approach is the 'Marketing Productivity Analysis' which is influenced from the 'Efficiency' perspective (Clark and Ambler 2001). Rust et al. (2004) has defined the marketing productivity analysis as the relationships between all the marketing expenditures and financial variables like sales and profit. This approach assumes that we can accurately assess both inputs and outputs of marketing process. It begins with calculating the ratio of output -e.g. sales or net profit to marketing input - e.g. expenditure (Ambler et al. 2004). The most frequently suggested input measures have included attempts to quantify marketing expenses and investments (Bonoma and Clark 1988). On the other hand, the most frequently

suggested output measures have included profits, sales, market share, and cash flow (Bonoma and Clark 1988). It is possible however, to a certain degree of accuracy, to measure the tangible inputs (costs) and outputs (revenues). When it is come to the less tangible inputs and outputs, the measurement process becomes more complicated.This research pathway contributes to MPM by developing relevant conceptual models of marketing performance (Morgan et al. 2002), as well as focusing upon measurement of marketing costs (e.g. Sevin 1965) and revenue (e.g. Feder 1965).

Despite these contributions, this approach has some considerable problems due to its assumptions that marketing inputs and outputs can be accurately assessed and that these measures can remain stable for protracted period of time. These assumptions are difficult to validate, especially when coupled with complications in transforming some marketing inputs and outputs, such as brand equity, into common currency (Morgan et al. 2002). Even though there was a movement towards including more 'non-financial' measures of marketing output (Morgan et al. 2002), for instance quality of service, this approach is seemed to be more focused upon the amount rather than the quality of marketing inputs and outputs (Da Gama 2011a). In addition to these implementation problems, marketing productivity approach has been also criticised for its reliance upon the knowledge of cause and effect relationships among inputs, managerial activities and outputs. However, this knowledge concerning such relationships in marketing processes remains opaque. Finally, marketing productivity analysis has been also criticised for its ignorance of 'the time lag' variances between marketing inputs and their effect on marketing outputs (Da Gama 2011a).

4.2.3.2 Marketing audits

The second approach for MPM is the 'Marketing Audits' which was developed in parallel with the emergence of 'Marketing Productivity Analysis' (Clark 2001). However, 'Marketing Audits' are distinct from 'Marketing Productivity Analysis' due to its incorporation of the 'Effectiveness' perspective. Marketing audit is a review or appraisal of marketing activities of a company which compares the actual marketing performance of a firm with its marketing plans. Marketing audits are composed of two marketing audit factors; the 'External Audit' and 'Internal Audit'. External audit evaluates the economic environment, the competitive environment and the market environment for the business and its competitors. In order to put an organisation's business under the microscope, the 'Internal Audit' is used to evaluate the sales, the market share, profit margins, costs and the effectiveness of the marketing mix for the business.

The process of marketing audits, thus, has four main stages; objective-setting stage, plan-setting stage, data collection stage, and report presentation stage (Kotler et al. 2009). A very common method used by marketing audits involves the use of diagnosis questions checklists which can range from a few dozen to more than 1,000 questions (Da Gama 2011b). The answers from these checklists are then compared with benchmarks, expectations or goals to give information about marketing health for an organisation (Da Gama 2012).

Historically, this concept was described as a valuable diagnostic device in marketing planning (Brownlie 1999); or as the discipline's most complete strategic control mechanism (Rothe et al. 1997, p.1) In summary, marketing audits offer a mechanism for employing quality initiatives within the area and for bearing in mind techniques in which current marketing processes could be re-engineered to provide greater value to both consumers and business (Da Gama 2012). Marketing audits provide a valid mechanism for approaching existing marketing problems in a structured manner. Marketing audits is the tool to reduce marketing budgets. It may also reveal new, neglected or unknown markets. Taghian and Shaw (2008) found a positive association between the use of marketing audit and increase in marketing share. Marketing audits may focus communication of a consistent message to the right customers.

However, (Da Gama 2011b) argued that this concept is still a relatively new and under-utilised activity for many establishments. Moreover, it needs skilful specialists with technical, analytical and interpersonal relationship abilities (Brownlie 1999). It has also been criticised for its limited concern of psychometric properties, objective problems and difficulties involved in its process. Morgan et al. (2002) argued that 'Marketing Audit' approach arose as a world-wide, prognostic, normative tool instead of a performance measurement system that is a firm-contingent. Moreover, 'Marketing Audit' approaches are mostly qualitative checklists that have little or no knowledge regarding measurement properties such as reliability and validity (Morgan et al. 2002).

4.2.3.3 The relationship between marketing audits and marketing productivity analysis

As marketing audit is a comprehensive study of all marketing activities, Kotler et al. (1989) established a set of 75 open-ended questions categorised into six groups: (1) market environment, (2) marketing strategy, (3) marketing organisation, (4) marketing systems, (5) marketing productivity and (6) marketing functions. According to them, marketing productivity audit involves understanding both profit and cost structure of the business. From this perspective, marketing audits approach comprises marketing productivity analysis.

As discussed in the previous sections, marketing activities have a dual effect on both the short-term and the long-term. While the 'Marketing Productivity Analysis' places emphasis on both time frames, Srivastava and Reibstein (2004, cited in Zubair and Imran 2011, p.430) assert that the use of 'Marketing Audits' is an appropriate approach to long-term measurement. Figure 4.2 presents the relationship between marketing audits (marketing effectiveness) and marketing productivity analysis (marketing efficiency). While the marketing audits places emphasis on positional advantages, marketing productivity analysis places emphasis on both market and financial performance.

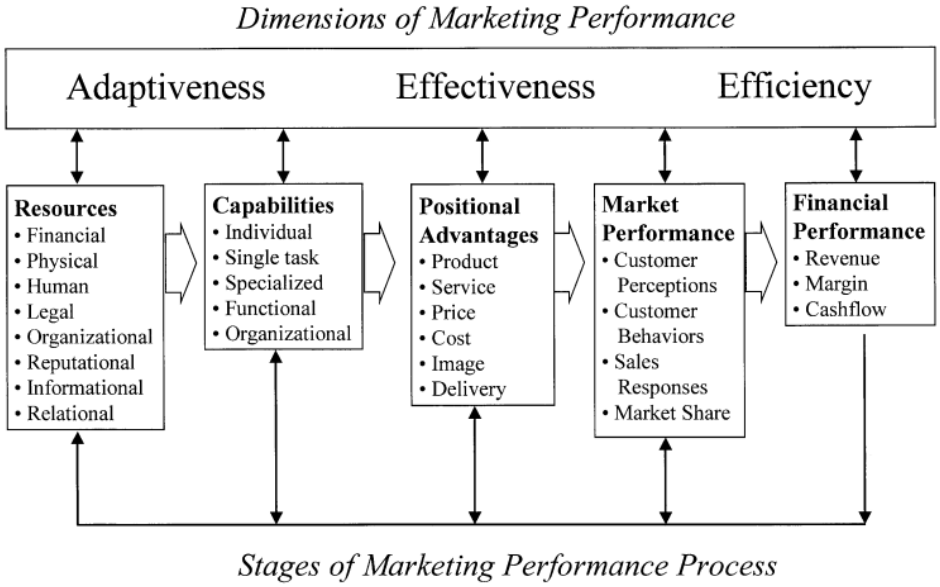


Figure 4.2 A Normative Marketing Performance Measurement System

Source: Morgan et al. (2002, fig.1, p.367)

However, Morgan et al. (2002) argued that neither marketing productivity analysis nor marketing audits alone provide satisfactory bases for an integrated marketing performance measurement. Along with the conceptual deficiencies and execution difficulties discussed, neither approach has been completely developed to reflect developments in a broader conception of organisational performance evident in competitive advantage, organisational effectiveness, and the resource-based view of the firm. Additionally, the incremental improvements in both marketing productivity analysis and marketing audit approaches have not succeeded in integrating existing knowledge. Therefore, Morgan et al. (2002) argued, the field of marketing performance measurement needs a new approach that integrates past productivity and audit approaches. They suggested that this proposed approach should be based on current theoretical frameworks clarifying organisational performance and it should

be capable of generating marketing performance measurement systems that are applicable to management needs and implementable in different corporate contexts.

4.2.4 The complexity of measuring marketing performance

The measurement of marketing performance varies among industries and manager perspectives (Ambler and Riley 2000; Zubair and Imran 2011). The multiple marketing strategies that firms employ naturally lead to various measurements of marketing performance (Miller and Cioffi 2004; Lamberti and Noci 2010). From an individual firm-level perspective, the significant differences in the approaches of MPM amongst organisations suggests that the measurements of marketing performance are not a ‘‘one-size-fits-all’’ type of organisational control (Morgan et al. 2002). It is even incomprehensible to propose a checklist to serve as a universal model for MPM (Da Gama 2012).

Furthermore, there is empirical evidence that MPM varies amongst firm size and nationality (Ambler and Riley 2000). Based on previous comparative studies, the metrics that UK firms used to measure marketing performance were relatively different from those used by firms from Spain (Llonch et al. 2002), China (Ambler and Xiucun 2003) or Ireland (O’Sullivan and Abela 2007). For example, O’Sullivan and Abela (2007) provided an insight into the metrics that Irish firms use to measure marketing performance indicating that MPM in Irish firms are dominated by financial metrics and that measurement practices appear to be less well developed than practices previously reported in the UK and Spain. According to Barwise and Farley (2004), there were significant differences in the use of six common marketing metrics (i.e. market share, perceived product/service quality, customer loyalty/retention, customer/segment profitability, relative price, and actual/potential customer/segment) among five countries (i.e. the USA, Japan, Germany, UK, and France); where German organisations were the heaviest users of these metrics and Japanese firms the lightest.

These broad differences of MPM are largely because of the difficulty inherent to their complexity and, therefore, the definition of the success of marketing performance has most often been subject to conceptual and qualitative treatments rather than rigorous empirical studies (Da Gama 2011a). In this context, Bonoma and Clark (1988, p.1) stated that “perhaps no other concept in marketing’s short history has proven as stubbornly resistant to conceptualisation, definition, or application as that of marketing performance”. In the literature there is lower levels of satisfaction with the existing measures of marketing

performance amongst marketing professionals are being expressed (e.g. O'Sullivan and Abela 2007).

Another reason for the variety of MPM is related to stakeholder power; which refers to the relative effect of the different groups who have an interest in the goals and the outcome of a particular organisation. Different stakeholder groups may include shareholders, customers and employees. The relative effect of these different stakeholder groups may influence the importance, the selection and the level of performance standards (e.g. Cameron 1986). Morgan et al. (2002) emphasise that stakeholder power may also influence the choice of benchmarks for performance standards as well as measurement orientation. Therefore, the literature on MPM has been criticised for its incomplete diagnostic power, its concentration on financial measures (Eccles 1991; Kokkinaki and Ambler 1999), its concentration on the short term, the dependence of the perceived performance based on selected indicators (Murphy et al. 1996), and the deficiency of awareness to shareholder value creation (Doyle 2000). Ambler (2003, p.51) stated that "the main problem of assessing marketing performance lies in measuring the latent benefit of that investment before the sales emerge". There are also difficulties associated with the process of evaluating brand equity (Eusebio et al. 2006).

4.2.5 Guidelines to build robust measures for marketing performance

Efficiency measures focus on resource utilisation and overall performance by finding and solving problems; optimising resources; and supporting strategic plans and objectives. It is important to develop an MPM system that reflects the true source of firm's market potential (Herremans and Ryans 1995). Ittner and Larcker (2003) emphasised the importance of understanding the desired effects before measuring it. A decent measurement system should reflect the perspectives of management and stakeholder alongside resources (Morgan et al. 2002). Therefore, marketing metrics need to be actionable and linked to the overall mission and objectives of the firm (Clark 2007). In addition, metrics should include the intangible resources, such as; knowledge, motivation and social capital (Zigan and Zeglat 2010). Marketing metrics should also have a 'predictive ability' (Meyer 2002, p.6); these metrics should be looking for trends to anticipate problems before they escalate whilst continuously monitoring progress.

The right metrics should not only seek to improve and forecast future outcomes but also gain management and employee support. Employee behaviour will be shaped by the metrics their firm implements. Employees will pay attention to things that are tracked and reported "up

the chain". Therefore, firms should measure things that encourage employees to deliver a great customer experience.

Marketing metrics should support customer needs; focus on effectiveness and/or efficiency; include a clear statement of expected end results; include qualitative milestones and indicators; support objective measurements that allow for meaningful statistical analysis; follow appropriate industry standards; and challenge the organisation to succeed. Marketing investments and commitments must be also assessed for their impact on efficiency and effectiveness of business processes and financial outcomes (Srivastava et al. 1999). Organisations also have to link their MPM to goals related as shareholder value (Zubair and Imran 2011).

The key measures must be simple enough to be usable and on the other hand they must be comprehensive enough to assess the marketing productivity and its impact on marketing success (Zubair and Imran 2011). This set should be also complete, meaning it takes into account customer loyalty and satisfaction, brand recognition, and market-orientation. The right metrics with the correct implementation will allow for monitoring progress and making improvements.

However, Clark (1999) argued that there is a need to develop a small set of reasonable, consistent and manageable measures. Meyer (2002) argued that too many measures for evaluation performance will lead information to be lost. Identifying a comprehensive set of metrics is a separate problem from reducing them to a manageable number (Pauwels et al. 2009). Ambler (2003) recommends removing metrics that show little variation over time, that add little in explanatory power to current metrics, that are too volatile to be reliable, or that are not leading indicators of financial outcomes.

4.2.6 Marketing metrics

Based on marketing productivity, Ambler and Kokkinaki (1997), Ambler et al. (2004) and Ambler and Roberts (2006) developed specific marketing metrics to evaluate marketing performance. Farris et al. (2010) defined a metric as a measuring system that quantifies a trend, dynamic, or characteristic. However, when studying the marketing metrics it is noticed that there are an excessive amount of different metrics (Clark, 1999; and Ambler and Kokkinaki, 1997). Within this context, Clark (1999) isolates 16 metrics; Davidson (1999) studies ten important metrics for marketing performance. Based on a literature review of five leading marketing journals, Ambler and Kokkinaki (1997) generated 19 distinct marketing

metrics, the most common were; market share, sales, purchase intention and profitability. Moreover, Ambler and Riley (2000) verified a total of 38 metrics, and Zubair and Imran (2011) analysed 16 of most common metrics. Table 4.1 exemplifies the evolution of these measures as stated by Clark (1999).

Table 4.1 The Evolution of Marketing Performance Measures

Stage	Measures
Single financial output measures	Profit, Sales revenue, Cash flow
Non-financial measures	Market share, Quality of services, Adaptability, Customer satisfaction, Customer loyalty, Brand equity
Multi-dimensional measures	Marketing effectiveness, Marketing efficiency

Source: Clark (1999**)**

Marketing metrics can be classified broadly as either 'Financial' (i.e. accounting) or 'Non-financial' (i.e. non-accounting). By using a critique of the empirical literature for the period from 1991 to 1995, Pont and Shaw (2003) illustrated that scholars and researchers had depended on 25 different measures to evaluate marketing performance both financially and non- financially. Table 4.2 presents these measures. Moreover, Table 4.3 shows the common marketing metrics in the United Kingdom as reported by Ambler and Riley (2000).

Table 4.2 Classification of Marketing Performance Measures

Classification	Performance Measures
Financial	Sales (and Growth), Return on investment, Market share, Return on assets / Profitability, Return on sales, Gross operating profit, Dollar share of the served market, and Return on capital.
Non-Financial	Service quality, Satisfaction (customer and company), New product success rate, Overall performance, Customer retention/loyalty, Overall performance relative to competitors , Return on equity, Satisfaction with overall performance, Brand awareness, Occupancy rate, Customer complaints, Expectations achieved by organisation, Number of visitors to a Website, Room occupancy rate, Attracting new customers, Volunteers numbers increased / decreased, and Employee turnover.

Source: adopted from Pont and Shaw (2003, p.2070, tab.2)

Table 4.3 Common UK Key Marketing Metrics

Metrics Category	Metrics
Consumer Intermediate	Awareness, Perceived quality, Consumer satisfaction*, Relevance to consumer, Perceived differentiation, Brand/Product knowledge.
Consumer Behaviour	Number of new customers, Loyalty/Retention, Conversion.
Trade Customer	Customer satisfaction, Number of complaints.
Relative to Competitor	Relative consumer satisfaction*, Perceived quality
Innovation	Number of new products, Revenue from new products, Margin from new products.
Financial	Sales, Gross margins, Profitability.

*Consumer' is used to refer to end-users in general, who may be individuals or businesses.

Source: Ambler and Riley (2000)

Depending on the literature of strategic marketing, Morgan et al., (2002) highlighted three measurement orientations; (i) customer-focused metrics; e.g. Customer satisfaction; (ii) competitor-centred metrics; e.g. Relative market share; and (iii) internally oriented metrics; e.g. Profitability. Nwokah (2009) found a strong positive relationship between customer-focus and competitor-focus on one side and marketing performance on another side. Petersen et al. (2009, p.97) categorise marketing metrics into seven groups; (1) Brand value metrics; (2) Customer value metrics; (3) Word of mouth and referral value metrics; (4) Retention and acquisition metrics; (5) Cross-buying and up-buying metrics; (6) Multi-channel shopping metrics; and (7) Product return metrics.

By using a Delphi study, Da Gama (2012) found that financial and intermediate output measures were the most cited by marketing executives for measuring overall marketing performance. He found that most referred metrics was; sales revenue, margins, penetration, brand awareness, relative price, market share and customer satisfaction.

4.2.7 Benchmarks of marketing performance

According to Clark (2001, p.364), the issue of the benchmarks against which MPM's can be compared is a critical issue for organisations. When studying the MPM, it is apparent that there exists an excessive amount of different metrics, in additional to the associated complexity of comparison (Clark 1999; and Ambler and Kokkinaki 1997). Performance measurements including MPM are inherently relative in nature (Morgan et al. 2002).

However, there are different perspectives of marketing benchmarks (referents); these referents stand as criteria against which marketing performance is assessed and they typically include:

1- Firm's past performance (e.g. last year's sales);
2- Competitors' performance (e.g. current market share of main competitors);
3- Written marketing plans (i.e. targets set in written marketing plans); and
4- Managers/ experts' expectations (i.e. managers' realistic expectations about potential sales; e.g. 15% increase in unit sales).

The selection of benchmarks for performance measurement is a critical issue because it significantly influences the observed performance level (Cameron 1986; Clark 2001; Hershberger et al. 2001). However, there is no empirical evidence in the literature to suggest any particular performance referent is fundamentally superior to any other. For example; Eccles (1991) suggested using current competitors' performance referent. According to Morgan et al. (2002), MPM systems may differ depending on the characteristics and behaviours of the competitors in the firm's environment. Choosing competitors' performance as a benchmark enables the firm to analyse how other firms achieve their performance in order to use this information to improve their own performance. However, Miles (1980, cited in Morgan et al. 2002, p.372) suggested the perspective of internal users, instead of external experts, as a performance referent.

The objectives and expectations of the evaluator as well as the relative power of various stockholders, managers and employees regarding desired performance levels play a significant role when choosing marketing benchmarks and criteria (Morgan et al. 2002). The time period over which performance is measured 'Time span' also influences the benchmarks selection. For example; when assessing the outcomes of past strategy, the reliance may be upon accounting-based measures and firm's past performance as a benchmark. However, non-financial metrics are more used when monitoring a firm's marketing performance to capture its potential performance in the future, as well as its past and current performance.

4.2.8 Conceptual models in marketing performance measurement

Regarding the conceptual modelling of MPM, Bonoma and Clark (1988) presented a model for marketing performance which conceded as an explicit attempt to merge the 'effectiveness' and 'efficiency' aspects in MPM. This model hypothesises that decent

marketing practice is "a function of the interaction between both structures that is placed to achieve the plans and the professionals who execute them" (Bonoma and Clark 1988, p.23). These structures and capabilities are affected by company strategy as well as by the external environment. In this model, the results are evaluated on a subjective basis according to the managers' satisfaction with these structures and capabilities. However, the model has been criticised for its evaluation limit to the program level (Da Gama 2011a).

By reflecting a historical revision on MPM, Clark (1999) suggests that marketing needs fewer measures and we should make a better use of the existing measures rather than making new ones. Furthermore, Clark (1999) provided more consideration of the connections among the measures of marketing performance. Therefore, his model hypothesises a number of inter-relationships among the fundamental measures, for example; customer loyalty, customer satisfaction, brand equity, and market orientation. Although Da Gama (2011a) considered this model as not an integrated one, its advantage rests in its ability to show the desired sequence for MPM, specifically, the sequence from marketing inputs to market outputs and then to financial outputs.

Morgan et al. (2002) proposed a model of MPM through two distinct inter-related approaches merging both effectiveness and efficiency. These approaches were the normative or universal systems and the contextual systems. This model covers firm's resources and capabilities, its positional advantages, the market performance and the financial performance. Thus, it is considered as one of the very concise and elaborative models for MPM (Zubair and Imran 2011). However, it does not clearly reflect marketing processes (da Gama2011a).

Another important model of MPM was developed by Ambler and Kokkinaki (2002) as an extension of the attempts to organise marketing performance measures by Kokkinaki and Ambler (1999). In this model, the authors included six categories for marketing performance and success measures which are; (i) financial measures (e.g. turnover and profit); (ii) competitive market measures are those related to a competitor or the whole market (e.g. market share, advertising and promotional share); (iii) consumer behaviour measures (e.g. consumer penetration, loyalty and customer gained); (iv) consumer intermediate measures (e.g. brand recognition, satisfaction and purchase intention); (v) Direct or trade costumer measures (e.g. profitability of intermediaries, distribution level, and service quality); and (vi) the dimensions of innovativeness. This model focuses mainly on the outputs of marketing activities and it is considered as a common approach of marketing productivity analysis.

In an upgrading of the former model of Ambler and Kokkinaki (2002), Ambler et al. (2004) included the marketing activities as inputs for their mode in agreement with the marketing productivity approach. They focus on the links between marketing input (marketing activity and investment) and output (financial outcomes). They also include the intermediate measures of memory (e.g. satisfaction and awareness) along with behaviours and competitive measures. This work is still considered as one of the major empirical studies relating to the selection process for the metrics utilised to MPM (Zubair and Imran 2011). However, although this model explicitly comprises the marketing inputs, it discounts the prerequisites or the conditions shaping these inputs (Da Gama 2011a).

Rust et al. (2004) proposed the 'chain of marketing productivity' as a broad framework model for MPM. This model incorporates both tactical and strategic marketing activities in order to found their relationship to the financial measures. The framework investigates the marketing strategies (e.g. product strategies and promotion strategies) which generate marketing tactics (e.g. branding programs, advertisement campaigns and loyalty enhancement schemes) which produce marketing activities. These activities are then reflected in a firm's market and financial assets. However, the marketing activities included in this model only take into account those actions which generate expenditures that can be directly associated to marketing. As a result of these activities, customer satisfaction, attitude towards the brand, loyalty and other customer-centred measurements are influenced, generating at the firm level variations in marketing assets (brand and customer equity).

One of the MPM models that focus on the unique characteristics of services is the Index of Services Marketing Excellence (ISME). Berry et al. (1991, p.261) defined ISME as;

> The systematic, periodic, objective, and comprehensive examination of an organisation's – or organisational unit's – preparedness for services marketing and its current effectiveness along the dimensions of marketing orientation, marketing organisation, new customer marketing, existing customer marketing, internal marketing, and service quality.

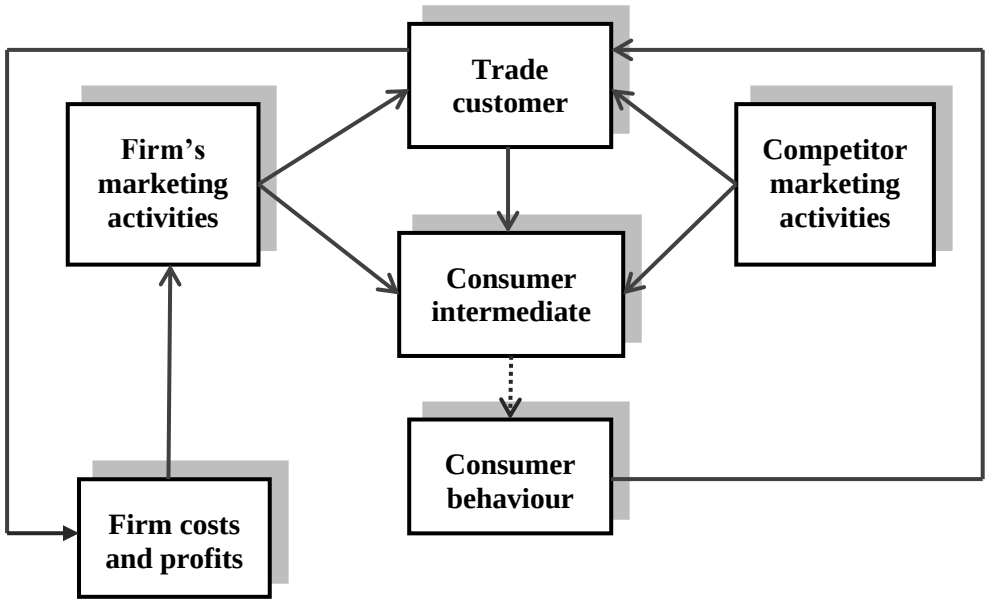
This instrument includes 66 items built on a seven-point Likert scale. ISME is considered as an approach of marketing auditing for services. However, it does not directly consider the external environmental concerns that are often covered by other models.

Lastly, a model suggests by Da Gama (2011a) as an extension to the existing ones. This model was proposed as an adoptable instrument that helps the evaluation of both requirements and processes establishing decent marketing practice and influencing value

creation. This model involves new measurement dimensions (i.e. marketing culture, marketing processes) as well as evaluative criteria and factors shaping process effectiveness. In his model, Da Gama (2011a) stressed the necessity of marketing to be both effective and efficient. He claimed that there is lack of adequate assessment measures in marketing which link actions and results together. Therefore, his model measures marketing performance based upon five dimensions: marketing culture, marketing capabilities, marketing processes, marketing performance and financial performance.

4.3 The Selected Marketing Metrics

There is no perfect or absolute system for measuring marketing performance (Ambler and Kokkinaki 1997) and there is still an argument among marketing professionals and academics about the most suitable metrics for MPM (e.g. Ambler and Roberts 2006; Zahay and Griffin 2010; Zubair and Imran 2011). The selected model of MPM for conducting this study is the model of 'simple marketing cash flow' first suggested by Kokkinaki and Ambler (1999) and developed by Ambler and Kokkinaki (2002) and then by Ambler et al. (2004). Figure 4.3 demonstrates the simple marketing cash flow model.



Source: Ambler (2003, p.23, fig.3.2)

Figure 4.3 Simple Marketing Cash Flow Model

According to Figure 4.3; marketing activities and actions influence market performance. Specifically marketing processes and activities can lead to intermediate outcomes, which in turn ultimately lead to financial results. In this model (i.e. chain of effects), marketing activities lead to customer reactions (of varying degrees). These reactions can be attitudinal or behavioural, but both types of reactions in this model can lead to sales and profit for the firm in question, ultimately affecting shareholder wealth (Ambler 2003; Rust et al. 2004; Clark 2007). Intermediate outputs can then be considered as marketing assets leveraging superior financial performance. Competitor and trade customers can also influence the intermediate outcomes which comprise of cognitive and behavioural reactions that customers have prior to purchase. Before customers purchase a product/service the organisation must initially, create, communicate and make the product/service available. Secondly, customers have to believe that the product will provide value to them relative to competing offers. Clark (2007, pp.42-2) describes intermediate outcomes as a hierarchy of effects which starts with customer 'awareness' followed by the acquisition of 'knowledge' then 'emotional attachment' about the product/ service and finally developing an 'attitude' towards/ against the product/ service. The key objective here is to identify these intermediate outcomes that are the leading indicators of purchasing and repeating purchasing behaviour. Customer awareness and pre-purchase behaviours (e.g. visiting a hotel Website) are the most common measures in this category.

This model deals with both what is known and what needs to be known with respect to the cash flow of marketing productivity. Performance measurement provides feedback to the organisation that can influence behaviour and capabilities of organisations and their stakeholders (Clark 1999; Rust et al. 2004; Clark 2007). According to Ambler (2003), marketing has to satisfy three groups of people; end users (e.g. hotel guests), immediate or trade customers (e.g. travel agents as mediator between hotels and their customers) and thus, all the stakeholders of the firm. This model takes into account the steps of marketing performance evaluations that have been mentioned by the earlier works of Bonoma and Clark (1988); and Clark (1999; and 2001). It is also referred in several later studies by Ambler and Riley (2000); Ambler and Kokkinaki (2002); Llonch et al. (2002); Morgan et al. (2002); Ambler (2003); Ambler and Xiucun (2003); Punt and Show (2003); Ambler et al. (2004); Barwise and Farley (2004); Rust et al. (2004); Eusebio et al. (2006); Woodburn (2006); Chung (2007); O'Sullivan and Abela (2007); Nwokah (2009) and Zubair and Imran (2011). Although measuring marketing process is as important as measuring marketing outcomes (Da Gama 2012), studying processes is significantly more problematic than

studying outcomes (Clark 1999). Thus, this model takes into account the above-mentioned outcomes rather than the process when evaluating marketing performance.

This model summarises marketing performance measures and success measures within six categories. These include; (1) Financial measures (e.g. turnover, contribution margin and profit); (2) Competitive market measures (e.g. market share, advertising and promotional share); (3) Consumer behaviour measures (e.g. consumer penetration, loyalty and customer gained); (4) Consumer intermediate measures (e.g. brand recognition, satisfaction and purchase intention); (5) Direct customer measures (e.g. profitability of intermediaries, distribution level, and service quality); and (6) Innovativeness measures (e.g. products launched and their revenue).

Table 4.4 shows the selected metrics (items) for measuring marketing performance. The researcher adopted 12 items from Ambler and Kokkinaki's (2002) model of marketing performance measurement. These items were selected as they were frequently cited and used in literature of marketing performance measurement (e.g. Llonch et al. 2002; Morgan et al. 2002; Punt and Show 2003; Barwise and Farley 2004; Rust et al. 2004; Eusebio et al. 2006; Woodburn 2006; Chung 2007; O'Sullivan and Abela 2007; Nwokah 2009 and Zubair and Imran 2011).

Moreover, these items were also cited and used in the contemporary literature of ICT and the marketing performance in the hospitality industry (e.g. Buhalis and Mamalakis 2015; Chevers 2015; Mihalič et al. 2015; Scaglione and Schegg 2015; Sun et al. 2015; Velázquez et al. 2015). Table 4.4 shows the 12 items for measuring marketing performance in this research divide into four categories (Financial, Market, Consumer, and Innovativeness measures). The table also gives examples for these items from the literature surrounding ICT and marketing performance in the hospitality industry. Next sub-sections discuss these Items in details.

Table 4.4 The Selected Marketing Metrics

Metrics Category	Metrics	Example from the hospitality industry
Financial measures	Turnover	Buhalis and Mamalakis (2015).
	Profit	Choi and Kimes (2002); Sigala (2005); Al Khattab and Aldehayyat (2011); McManus (2013); Mihalič and Buhalis (2013); Murphy (2013); Jung et al. (2014); Berné et al. (2015); Buhalis and Mamalakis (2015); Mihalič et al. (2015).
Market measures	Market share	Al Khattab and Aldehayyat (2011); McManus (2013); Schegg and Scaglione (2013); Berné et al. (2015); Scaglione and Schegg (2015).
	Occupancy rate	Toh et al. (2011); Sun et al. (2015).
Consumer measures	Service quality	Lee et al. (2003); Sigala (2005); Benitez et al. (2007); Kim and Ham (2007); Kim et al. (2008a); Al-Rousan (2010); Al Khattab and Aldehayyat (2011); Emir and Kozak (2011); Šerić and Gil-Saura (2012); Boon et al. (2013); Šerić et al. (2014); Chevers (2015).
	New customers	McManus (2013); Richard (2013).
	Customer loyalty	Lee et al. (2003); Sigala (2005); Emir and Kozak (2011); Al-Rousan (2010); Nam et al. (2011); Šerić and Gil-Saura (2012); McManus (2013); Reino et al. (2013); Richard (2013); Velázquez et al. (2015).
	Customer satisfaction	Sigala (2005); Lin et al. (2010); Emir and Kozak (2011); Sirirak et al. (2011); Nam et al. (2012); McManus (2013); Murphy (2013); Xiang et al. (2013); Chevers (2015); Velázquez et al. (2015).
	Brand awareness	Kim and Kim (2005); Kayaman and Arasli (2007); So and King (2010); Xu and Chan (2010); Nam et al. (2011); Šerić and Gil-Saura (2012); Šerić et al. (2014).
	Purchas intention	Wong and Law (2005); Kim et al. (2006); Kim et al. (2008a); Emir and Kozak (2011).
Innovativeness measures	New products	Gray et al. (2000); Scaglione and Schegg (2015).
	Revenue from new product	

Source: Literature review

4.3.1 Financial measures

Financial measures have dominated quantitative methods to MPM (Da Gama 2011a). There is a wide-ranging body of work on the financial measurement of MPM. In particular, increasing attention has been given to the financial returns of the marketing activities (Clark 2001). Sheth and Sharma (2001) stated that this attention is primarily due the notable increase in the marketing costs with declining returns. Stewart (2009) demonstrated that financial measures are important, simply, because finance is the language of the company. Marketers should be able to argue successfully with the accountancy profession and to develop ways to quantify marketing which are meaningful to senior executives and investors. Sheth and Sharma (2001) emphasised that the lack of understanding the surrounding financial implications of marketing performance has led senior executives to question the financial productivity of marketing.

Therefore, the accountability of the marketing department is a key antecedent of the marketing department's influence (O'Sullivan and Abela, 2007; Verhoef and Leeflang 2009). Financial measures are popular for evaluating hotel performance (Zigan and Zeglat 2010). Moreover, financial measures are usually the first type of measures to be employed by researchers to evaluate marketing performance (Feder 1965; Eccles 1991; Clark 1999; Ambler 2000). To some extent, the non-financial marketing metrics are associated with current and future financial ones (Lehmann 2002). In a study of Da Gama (2012), marketing executives ranked the financial output metrics as the most important MPM.

Early work in MPM was mostly focussed on investigating the productivity of marketing efforts in creating positive financial outputs (i.e. the profitability analyses of marketing efforts). Sevin (1965), a classic in this field, discussed in great detail how to relate financial outputs to marketing inputs. Feder (1965) borrowed from the marginal revenues-marginal costs concept in microeconomics to suggest how to allocate marketing resources most efficiently. Later work expanded from using profitability as an output to the use of more sophisticated measures from the finance literature. In their review of firm-level marketing productivity studies, Bonoma and Clark (1988) identified profitability, margins, cash flow and sales revenue as the best marketing metrics. Results by Kokkinaki and Ambler (1999) indicated the same measurements. Other potentials measurements include return on investment (e.g. Greenyer 2006; Woodburn 2006; Buhalis and Mamalakis 2015), and marketing assets (e.g. Doyle 2000; Rust et al. 2004). Return on investment is the relationship between profit and the investment that generates that profit, and it has been used to examine the performance of ICT investment in hotels (Buhalis and Mamalakis 2015).

However, many authors underlined some problems with using only financial measures as MPM (e.g. Eccles 1991; Doyle 2000). Many financial measures are described as backward looking, reflecting events that have already occurred (Clark 2001; Da Gama 2012). Traditional financial measures do not capture the intangible values (Sheth and Sharma 2001) and ignore the connection between actions and results (Verhoef 2009; McDonald 2010). Moreover, Zubair and Imran (2011) argued that theories on the return on investment, for example, have proven to be a weak approach to the MPM. On the other hand, Sheth and Sharama (2001) suggest that marketing will gradually move toward better financial evaluation measures.

Financial measures can be divided into two groups; (1) the inputs financial measures, like; marketing investments and (2) the outputs financial measures, like; sales revenues and profits. Sheth and Sharma (2001) argued that marketing outputs are difficult to measure and marketing inputs are examined more because they stand out in the balance sheet.

4.3.2 Market measures

Since financial measures are considered as snapshots for historical and present performance and do not say much about the health of the future marketing performance (Da Gama 2012), the specific literature about MPM brought an enlarged conception of non-financial measures (e.g. Clark and Ambler 2001; Ambler and Riley 2000; Ambler and Kokkinaki 2002; Ambler et al. 2004; Gupta and Zeithaml 2006; Persson and Ryals 2010; Zahay and Griffin 2010). Clark (1999) explained how MPM shifted from relying on traditional financial measures (i.e. profit, sales, and cash flow) to the inclusion more non-financial measures (e.g. market share, customer satisfaction, brand equity and marketing audit). Another reason for such shift in MPM is that there are vital marketing assets that are not adoptable by traditional financial measures -i.e. the intangibility (Da Gama 2011a). However, Zigan and Zeglat (2010) argued that including non-financial measures do not perfectly capture intangible resources.

Market share is the most common market measure of marketing performance (Clark 2001; Clark and Ambler 2001). It presents the percentage of a market's total sales that is earned by a particular company and it can be defined in terms of either revenue or sales units. Market share metrics attracted more considerably more attention from the 1970s until the present day (e.g. Kokkinaki and Ambler 1999). Farris (2010) reported that the most senior marketing managers in USA consider market share as very useful metric.

As it mentioned before, MPM may be viewed from customer, competitor, and internal perspectives. Market measures, like market share and occupancy rate, are mainly analysed in reference to the competitive landscape (Morgan et al. 2002). Moreover, market measures concern the managements' awareness of marketplace and the positional advantages achieved (Morgan et al. 2002). According to the model suggested by Ambler and Kokkinaki (1997), these measures can later determine the financial performance outcomes in terms of profitability and revenue.

4.3.3 Customer measures

Since the late 1980s customer measures have attracted the consideration of both organisations and researchers. A study of Morgan et al. (2002) emphasises that market performance concerns the cognitive and affective customers' responses (e.g. brand awareness and perceived quality) and the subsequent effect of customer behaviours (e.g. purchase decision making and actions) as well as the outcomes of customer post-purchase. As Clark (2001, p.362) stated, this approach of MPM follows the dictum 'don't make sales, make customers.'

The most common metric for marketing performance that is related directly to customers is 'Customer Satisfaction' (Clark 2001). Customer satisfaction has been defined in many different words, but essentially is the consumer's judgment that a product or service meets their expectations (Gupta and Zeithaml 2006). It measure how happy people are with products, services or even Websites and it can give lots of data on marketing performance and performance trends. Customer satisfaction is closely linked with a firm's marketing activities. A study by Baidya and Basu (2008) revealed that the level of customer satisfaction differs according the different efforts in the marketing mix.

The relationship between customer satisfaction and financial performance has been examined by a large number of researchers in the last decade. The research is unanimous in suggesting a positive relationship between satisfaction and profitability (e.g. Clark and Ambler 2001; Sheth and Sharma 2001).

Many researchers have conducted surveys on customer satisfaction within hotel and hospitality services (Emir and Kozak 2011). Based on a review for hospitality marketing research published in selected hospitality journals, Oh et al. (2004) and then Line and Runyan (2011) emphasised that issues relating customer satisfaction were the most

examined topic. However, according to Yilmaz and Bititci (2006), there is still a need for a robust measurement system to evaluate customer satisfaction for the tourism organisations.

Another important metric is the 'perceived service quality' which refers to the degree and direction of difference between customers' service perceptions and expectations (Gupta and Zeithaml 2006). Service quality is crucial to the success of any organisation and it is usually assessed against the competitors. Perceived service quality is also considered significant element of success in the tourism industry. Kandampully (2006, p.175) stated that "the customers of today are unwilling to compromise on the quality of service they receive, and quality of service has become the key to customers' approval of a hospitality organisation". The findings from a study by Claver-Cortés et al. (2008) support that total quality management has positive effects to the hotel industry.

More specifically, hotels with better service quality show an increase in their market share and then their profitability (Al Khattab and Aldehayyat 2011). Therefore, many researchers conducted surveys on customer perceptions of the quality of the hospitality establishments (e.g. Benitez et al. 2007; Kim et al. 2008a; Emir and Kozak 2011).

'Customer Loyalty' is also one of the most common marketing performance indicators, because it ties directly to overall organisational success (Clark 2007). Customers who are loyal are expected to be more profitable (Clark 2001). Behaviourally, loyal consumers are those who continue to buy the same product or service over some period of time (Gupta and Zeithaml 2006). It can be measure by asking a variation questions on how a customer likely to recommend the products and services of the establishment. Emir and Kozak (2011) emphasised that hotel businesses should pay attention to customer loyalty to increase their profitability and sustain their assets in the long-term.

Hotels are trying to achieve customer loyalty by offering better quality services. There are many studies link between service quality and customer loyalty. For example, Al-Rousan (2010) assessed the influence of tourism service quality on customer loyalty within the Jordanian five star hotels. The study surveyed the opinions of 322 tourists who were staying at three branches of Marriott hotel in Jordan. This study reveals that the dimensions of service quality (i.e. empathy, reliability, responsiveness and tangibility) significantly impact customer loyalty. Therefore, hotels should try their best to deliver better service quality to achieve customers' loyalty.

Customer awareness refers to the extent to which a brand, product or service is familiar by potential customers. Many researcher studied customer awareness as a factor of hotel brand equity (e.g. Kim and Kim 2005; Kayaman and Arasli 2007; So and King 2010). For

example, a study carried out by Kim and Kim (2005) suggested that brand awareness significantly affects the overall performance of establishments in the hospitality industry of Korea.

Customer purchase intention denotes customer plans to purchase a particular good or service (e.g. to book a room) in the future. Customer purchase intention has examined within the hospitality industry (e.g. Wong and Law 2005; Kim et al. 2006; Kim et al. 2008a). A study of midscale hotels in the U.S. by Kim et al. (2008a) found that guests' revisit intention is positively affected by loyalty and awareness.

Customer retention, customer acquisition and customer engagement are also amongst the measures that can be used to analyse the effectiveness of marketing activity. Customer retention is the probability of a customer being 'alive' or repeat buying from a firm (Gupta and ZeithamI 2006). Customer retention is a critical issue in customer relationship marketing (CRM) for any firm (Aspinall et al. 2001). Customer acquisition, on the other hand, refers to the first-time purchase by new or lapsed customers (Gupta and Zeithaml 2006). Some researcher considers that customer retention is more important than customer acquisition in evaluating marketing efforts. Dev et al. (2010, p.464) stated that "conventional marketing wisdom is that it costs five times as much to create a customer as it does to maintain an existing one". However, Ranaweera (2007, p.133) indicated that "long-term customers might not necessarily be more profitable than new customers". Regarding the customers engagement (i.e. customer care), it refers to the percentage of the customers how are care enough to take a personal interest in firm's products and services.

4.3.4 Invention measures

Innovativeness of the marketing department is a key antecedent of the marketing department's influence (Verhoef and Leeflang 2008). According to Kandampully (2006), innovative firms will be the market leaders in current hospitality environment. Gray et al. (2000, p.150) stated that "innovation is an important source of competitive advantage in markets where customer preferences are changing rapidly, where competition is intense, where product lifecycles are shortening and maturing, and/ or where differentiation is limited". Furthermore, innovation positively influences the ability to increase market share and to maintain the differentiation and a price premium (Phillips and Moutinho1998).

Within the hotel and leisure industry, there is practical evidence on the importance of invention for better marketing performance. For example, Victorino et al. (2005) study the

impact of innovation on customers. They found that service innovation (e.g. room customisation) affects customer choice of hotel; especially, if they were leisure travellers. According to Rayna et al. (2009), innovative service concept is a critical factor in luxury hotels to achieve both product differentiation and cost leadership.

Clark (2001) considered evaluating the health of the firm's ability to adapt or innovate as the most promising non-financial MPM. The number of new products and services is one the most popular metrics for measuring the invention aspect of marketing performance (Clark 2001; Clark and Ambler 2001; Ambler 2003). There empirical evidence of using the number of new products for measuring performance in the hospitality firms (e.g. Gray et al. 2000).

4.4 ICT Assessment in the Hospitality Industry

Contingency theory proposes that there is no comprehensive ICT system that is appropriate to all establishments in all environments. Therefore, Wang and Qualls (2007) emphasise that there need to be different approaches in order to measure ICT adoption. Scholochow et al. (2010) has classified the problems of measuring ICT productivity into three groups; (i) the measurement problems (e.g. the variation in ICT definitions), (ii) the time lags before stakeholders can observe the productivity of new ICT systems, and (iii) the changing processes and routines when implementing new ICT systems. From an academic point of view, the dimensions of ICT varied according each researcher's perspective, specialisation and background.

Some of these researchers examined the adoption and the acceptance of this technology (e.g. Lam et al. 2007; Morosan and Jeong 2008). Most of these studies are based on the technology acceptance model (TAM), which was developed by Moore and Benbasat (1991) as an instrument to measure the initial adoption and eventual diffusion of ICT within firms. Fore example, Morosan and Jeong (2008) used the TAM model to evaluate users' perceptions of two different channels for hotel online reservations (hotel-owned Website and third-party Website). They found that the perceived usefulness was the main predictor of users' attitudes toward using hotel-owned Websites, while the perceived ease of use was the main predictor of users' attitudes toward using third-party Websites.

Some of these researchers take Rogers's (1995) theory of the diffusion of innovation which tries to find explanations of how, why, and at what rate a new ICT systems spread through an environment (i.e. a group, a firm, a community, or a country). This theory proposes that at the early stages of diffusion of a new technology, some adopters (i.e. innovators) will decide

to adopt a new technology self-sufficiently of the decision of others within the social environment. And therefore, innovators are the first group of people to adopt the new technology. Innovators are followed by early adopters, then the early majority, next comes the late majority, and the last group to eventually adopt the technology is called laggards (Rogers 1995).

The financial component of ICT (i.e. spending, and investment) is an essential aspect to evaluate ICT adoption in hotels. ICT expenditures and budgets are the most regularly employed metrics of automation, as they are easily attainable and relatively objective (Ruiz-Molina et al. 2011). However, the relationship between ICT investments and a firm's performance is complicated and multifaceted (Scholochow et al. 2010). ICT investments do not distinguish between different ICT capabilities, tools and applications (Ruiz-Molina et al. 2011), therefore, their reliability and validity are widely criticised. Ruiz-Molina et al. (2011) argue that the influence of fluctuations over time and the diverse methods of financing and measuring ICT expenditures are key problems for measuring the financial side of ICT.

Some researchers examined the ICT from the technical point of view (i.e. hardware, software, networks, and databases). The ICT application in hotels has been assessed through various technological solutions (Law and Jogaratnam 2005; Buhalis and Law 2008; Ruiz-Molina et al. 2010). Table 4.5 presents the main ICT solutions implemented in hotels and examined by the literature. These ICT solutions include information systems, e-marketing and sales solutions, network connectivity technologies as well as hotel hardware and software. For example, Ham et al. (2005) identified some ICT applications that have been broadly implemented within the hospitality industry which include; hotel Websites, eMail, Wireless Internet, CRM, inventory systems and electronic transactions. Lam et al. (2007) posits that the most utilised ICT technology in hotels are the Internet, e-mail, voice-mail, reservation systems, accounting and financial reporting systems, food and beverage ordering systems, teleconferencing, cell phones, interactive guides for guests, electronic credit-card authorisation and graphic reporting.

Bayo-Moriones and Lera-Lopez (2007) emphasise the need to assess the different ICT solutions separately. However, as can be seen in Table 4.5 many researchers divided ICT solution into broad categories. For example Sigala (2003) divided various ICT solutions into two categories: (i) the Front-Office technologies (e.g. reservations, customer relationships, food and beverage and housekeeping), and (ii) the Back-Office technologies (i.e., human resources, accounting, data mining, cash, etc.). According to Lee et al. (2003, p.425) ICT systems in hotel establishments are applied at two levels: "(1) for in-room (guest room)

services; and (2) at the managerial and operational level". Law and Jogaratnam (2005) measured technical ICT solutions in Hong-Kong hotels through: (a) hotel software, (b) hardware platforms, (c) operating systems, (d) the Internet home page, (e) ICT provided for guests, and (f) connection to the central reservation system. Moreover, Ruiz-Molina et al. (2010) categorised the main ICT solutions applied in hotels into: (a) in-house ICT (i.e., hotel hardware and software, business integrated processes, and network connectivity technologies), and (b) ICT for external use (i.e., customer relationship management, e-marketing and sales solutions, ICT solutions related to customers and electronic supply management).

Table 4.5 ICT Dimensions in the Hospitality Industry Literature

Authors	Sample	ICT dimensions (Items)
Gilbert and Powell-Perry (2002)	140 Yahoo hotel websites	Language localisation (1), special promotions (1), virtual tour (1), what's new (1), property information (1), on-line directory (1), corporate information (1) and electronic brochure (1).
Lee et al. (2003)	30 managers of three, four, and five star hotels Australia	Guest-room technologies (10), service-operation technologies (17) and impact of technology on sales and marketing (26).
Sigala (2003)	Managers of 93 three-star hotels in UK	Room division ICT (10), food and beverage division ICT (4), in room ICT (6), general ICT (8), property management systems (6), Website (6), E-mail (7), Intranet (7), Extranet (7) and customer data warehouse (7).
Ham et al. (2005)	employees of 13 five- and 8 four-star hotels in Seoul, South Korea	Front-Office applications (5), Back-Office applications (6), restaurant and banquet management systems (4) and guest-related interface applications (5).
Law and Jogaratnam (2005)	21 managers of hotels in Hong Kong	Operating systems used in hotels (9), application software/systems used in hotels (10), hardware platforms (12), IT equipment and services provided for guests (9), hotels have a homepage on the Internet (6) and if Hotels have a connection to the central reservation system or CRS (1).

Authors	Sample	ICT dimensions (Items)
Sahadev and Islam (2005)	Executives of 95 hotels in Thailand	E-mail-based booking (1), online real-time booking (1), global distribution system (1), Internet centre in hotel (1), Internet in all rooms (1),wireless Internet in hotel (1), local area network for Back-Office (1) property management software (1), and E-checkouts from rooms (1).
Beldona and Cobanoglu (2007)	265 US consumers	Guest room technologies (24).
Karadag and Dumanoglu (2009)	Managers of 122 upscale hotels in Turkey	Guest-related ICT applications (9).
Reino (2009)	477 Scottish accommodation establishments	Usage level of; Hardware (6) and general networking infrastructure (7).The availability and interconnectivity of; Front-Office systems (4), electronic distribution systems (4), business administration systems (5), business intelligence systems (3) and guest service systems (15).
Scholochow et al. (2010)	The managers of 3,600 Austrian hotels	Usage level of; PMS, enterprise resource planning system, YMS, coasting & accounting system, electronic CRM, eMail marketing, personal information system, Websites, distribution via online platform, and online procurement
Ruiz-Molina et al. (2011)	Managers of 200 three, four, and five-star hotels in Spain	In-house ICT: hardware (17), connectivity (5), software (7), guest service equipment (3), and in-room equipment (9). ICT for external use: CRM (4), communications with customers (5), advertising (5) and online order reception (12).
Verma et al. (2012)	2830 guests in USA hotels	Sites consulted at three purchase stages (3) and mobile innovations (7).
Šerić et al. (2014)	335 guests in 20 luxury hotel in Rome, Italy.	Perceptions regarding whether the hotel invests in ICT (1), perception of the most advanced ICT (1), perception of the hotel's technology as more advanced, compared to other hotels (1), and cons-ideration of guest opinion for ICT improvement (1).

In order to reflect previous arguments emphasising that benefits accrue from the organisational utilisation and innovation of ICT systems, researchers operationalised the ICT construct in three metrics: (i) availability of ICT systems; (ii) integration of ICT systems (e.g. with property management systems); and (iii) intensity of ICT usage (Sigala 2003; Sirirak et al. 2011). The availability of ICT systems in hotels was measured in terms of the number of items they have (e.g. Siguaw et al. 2000; Ham et al. 2005; Chathoth 2007; Sirirak et al. 2011). The integration of ICT systems was measured by the number of ICT systems linkages between a specific operational domain and the main server systems or to other operational domains (Sigala 2003; Reino 2009; Sirirak et al. 2011). The intensity of ICT usage was measured by the percentage of the total processes carried out using particular ICT system (Sahadev and Islam 2005; Sirirak et al. 2011).

Previous studies about ICT applications in the hotel industry have focused either on managers or customers' opinions in order to assess these applications. Law and Jogaratnam (2005) examined ICT applications in Hong Kong hotels, more specifically- the hotel electronic data processing and management information systems (EDP/MIS). The authors conducted interviews with 21 managers, adopting different technical and behavioural aspects of ICT. Their findings showed that ICT was not used for high-level business decision-making and that hotel decision makers did not realise the importance of ICT for the purpose of developing business strategies. Similarly, Sahadev and Islam (2005) explored the adoption of ICT-based hotels by examining the factors that influence a hotel's propensity to adopt ICTs through a survey amongst 95 hotels from seven locations in Thailand. By surveying managers' perspectives in 3,600 Austrian hotels, Scholochow et al. (2010) found that there was a significantly positive impact of ICT systems upon the productivity of Austrian hotels.

Conversely, there have also been studies that have focused on customers' opinions to assess IT applications in hotels. For example, Beldona and Cobanoglu (2007) assessed how hotel guests view in-room technology compared the importance of technologies to how they perform based on 265 responses. Their results indicate that important basic technologies like in-room temperature controls and alarm clocks fail to perform in the way guests want, and that the new technologies like plasma screen TVs and in-room printers and faxes are less important. Furthermore, the research conducted by Verma et al. (2012) examined the Internet search preferences and mobile device use of 2,830 travellers with regard to gathering information for a hotel stay to conclude that recommendations of friends and colleagues were most important to leisure travellers, followed by travel-related Websites,

search engines, and OTAs. Šerić et al. (2014) examined the impact of integrated marketing communications on hotel brand equity (brand image, perceived quality, and brand loyalty) from the perspectives of 335 guests in 20 luxury hotels in Rome, Italy.

Kucukusta et al. (2014) assessed 200 business travellers' perceptions of (Self-Service Technology) SST implementation by luxury hotels in Hong Kong. Their results emphasised the significance of both SST and personal service in filling customer needs and in increasing company profitability. Verma et al. (2012) reviewed the Internet search preferences and mobile device use of 2,830 travellers. They found that business travellers and leisure travellers differ in their search for information for a hotel stay. However, after gathering the information, travellers of all kinds check more to particular sources such as a hotel Website and TripAdvisor.

Some studies consider hotel employees in a better position to assess ICT effect on performance due their extensive involvement in implementing ICT applications. For example, Ham et al. (2005) examined the effects of IT applications on their performance in lodging operations by surveying the employees of 13 five-star and 8 four-star hotels in Seoul, South Korea. Front-Office applications, restaurant and banquet management systems and guest-related interface applications were significantly and positively affected performance of lodging operations; however, guest-related interface applications were not significant.

4.5 The Selected ICT Dimensions

As discussed above in Section 3.3, ICT systems can be categorise depending on the core services delivered by hotels (Ham et al. 2005; Sigala 2003). However, the 'Contingency Theory' suggests that there is no comprehensive ICT system that is appropriate to all establishments in all environments. Therefore, there is no perfect or absolute set of ICT systems for hotel establishments. This research attempts to cover the most comprehensive and modernised ICT systems in hotels that may affect their marketing performance. Previous literature has proposed a number of frameworks to evaluate ICT implementation in the tourism industry in general, and in the hospitality sector in particular (e.g. Sigala 2003; Ham et al. 2005; Law and Jogaratnam 2005; Sahadev and Islam 2005; Beldona and Cobanoglu 2007; Karadag and Dumanoglu 2009; Reino 2009). These frameworks have limitations with regards to their methodology and scope.

The selected framework of ICT assessment for conducting this research is the framework for 'eTourism Capability Assessment' developed by Reino (2009). E-tourism refers here to the contribution of ICT adoption to business performance within the tourism domain. This framework was developed depending on a combination of previous research in business and e-business that assessing the e-tourism capability, especially, on approach for ICT indexing in the accommodation sector (e.g. Ham et al. 2005; Sigala 2003). This framework was (as it was in 2012) the most comprehensive and recent framework that addressed the previous limitations in the literature.

Table 4.6 shows the selected ICT systems (items) for measuring marketing performance. The researcher adopted 43 items from Reino (2009) framework for ICT assessment in the hospitality sector. Moreover, the researcher added five more items to investigate the availability of social media and their effects on the marketing performance within the hospitality industry. The total number of the items that asses ICT adoption is (48) items. These items were selected as they were frequently cited and used in the contemporary literature of ICT in the tourism and hospitality industry (e.g. Scholochow et al. 2010; Ruiz-Molina et al. 2011; Aziz et al. 2012; Law et al. 2013; Nwakanma et al. 2014; Mihalič et al. 2015; Scaglione and Schegg 2015). Table 4.6 shows the 48 items for measuring ICT in this research divide into seven categories (Hotel Front-Office Systems; Reservation Systems; Guest Service Systems; Business Administration Systems; Business Intelligence Systems; Social Media; Hardware; and General Network Infrastructure). Table 4.6 also gives examples for these items from the literature surrounding ICT and marketing performance in the hospitality industry. Section 3.3 in Chapter Three (pp.34-51) discussed these systems in details.

Table 4.6 The Selected ICT Items

Items	Example from the hospitality industry
Hotel Front-Office Systems (HFOS)	Sigala (2003); Hoontrakul and Sahadev (2004); Ham et al. (2005); Sahadev and Islam (2005); Sigala (2005); Scholochow et al. (2010); Ansah et al. (2012); Aziz et al. (2012); Li (2012); Murphy (2013); Reino et al. (2013); Kapiki and Fu (2015); Chevers (2015).
Property Management System (PMS)	
EPOS / Restaurant Management System	
Conference / Banqueting Management System	
Leisure Management System (LMS)	

Items	Example from the hospitality industry
Reservation Systems Booking through Website Alternative Distribution Systems (ADS) Global distribution system (GDS)	Choi and Kimes (2002); Sigala (2003); Hoontrakul and Sahadev (2004); Law and Jogaratnam (2005); Sahadev and Islam (2005); Sigala (2005); Wang (2008); Scholochow et al. (2010).Toh et al.(2011); Aureli et al. (2013); Bethapudi (2013); Richard (2013); Schegg and Scaglione (2013); Schegg et al. (2013); Nwakanma et al. (2014); Berné et al. (2015); Fernandez et al. (2015); Mihalič et al. (2015); Scaglione and Schegg (2015); Sun et al. (2015).
Guest Service Systems Electronic Door Locking System In-Room Electronic Minibar In-Room Internet Free Access In-Room Internet Paid Access In-Room Telephone Do-Not Disturb/ Make-Up-Room Electronic Annunciation In-Room Printing Facilities In-Room Thermostat Switch In-Room Internet Sensor Motion Energy switch Key Card energy Switch Guest-Operated Heating Control Switch In-Room Entertainment System	Lee et al. (2003); Sigala (2003); Hoontrakul and Sahadev (2004); Ham et al. (2005); Law and Jogaratnam (2005); Sahadev and Islam (2005); Sigala (2005); Beldona and Cobanoglu (2007); Ruiz-Molina et al. (2011); Li (2012); Reino et al. (2013); Richard (2013); Jung et al. (2014); Kucukusta et al. (2014); Kapiki and Fu (2015).
Business Administration Systems Accounts Receivable System General Ledger Accounting System Human Resources System eProcurement Software Energy Management system Work Order Maintenance	Lee et al. (2003); Sigala (2003); Ham et al. (2005); Sigala (2005); Scholochow et al. (2010); Aziz et al. (2012); Li (2012); Richard (2013); Nwakanma et al. (2014); Mathur (2015).

Items	Example from the hospitality industry
Business Intelligence Systems	Choi and Kimes (2002); Sigala (2005); Claver-Cortés et al. (2008); Scholochow et al. (2010); Li (2012); Law et al. (2013); Richard (2013); Fernandez et al. (2015); Kapiki and Fu (2015); Mathur (2015).
Customer Relationship Management System	
Sales and Marketing Analysis System	
Yield Management System	
Hardware	Sigala (2003); Jogaratnam (2005); Sigala (2005); Law and Ruiz-Molina et al. (2011); Law et al. (2013); Chevers (2015).
Desktop EPOS	
Hand-Held EPOS	
Self-Service Kiosks	
Laptops	
Hand-held PCs	
Desktop PCs	
General Network Infrastructure	Sigala (2003); Hoontrakul and Sahadev (2004); Law and Jogaratnam (2005); Sahadev and Islam (2005); Sigala (2005); Scholochow et al. (2010); Ruiz-Molina et al. (2011); Bethapudi (2013); Law et al. (2013); Richard (2013); Jakovic and Galetic (2014); Nwakanma et al. (2014); Chevers (2015); Kapiki and Fu (2015); Mathur (2015); Mihalič et al. (2015).
Business eMail Account	
Dial-Up Internet Access	
Broadband Internet Access	
Wired Internet Access	
Wireless Internet Access	
Your Company Owned Intranet	
A Website	
Remote Access to your Company Network	
Voice-Over-IP	
Social Media	Bethapudi (2013); Boon et al. (2013); Inversini and Sykes (2013); Minazzi and Lagrosen (2013); Pesonen et al. (2013); Reino et al. (2013); Richard (2013); Ge et al. (2014); Buhalis and Mamalakis (2015); Kim et al. (2015).
Facebook	
Twitter	
YouTube	
Flicker	
MySpace	

Source: Literature review

4.6 Research Framework

4.6.1 Formalised research question

According to the research problem mentioned in Chapter One, the formal main research question in this thesis is "What is the relationship between the use of ICT systems and the marketing performance of Jordanian upscale hotels?" This research can discuss this main question by the following sub-questions:

1. ***What is the level of ICT usage in Jordanian hotels?***

   1.1 What types of ICT applications do Jordanian hotels use?

   1.2 What is the level of each set of ICT applications used by Jordanian hotels?

   1.3 Are there any differences in the existing ICT applications based on the characteristics of the hotel?

2. ***What is the level of marketing performance in Jordanian hotels?***

   1.1 What is the level of marketing performance in Jordanian hotels by each standard?

   1.2 Do hotels differ in the actual marketing performance depending on their characteristics?

3. ***How ICT usages effect the marketing performance in Jordanian hotels?***

   1.1 What is the most powerful set of ICT applications that affect marketing performance?

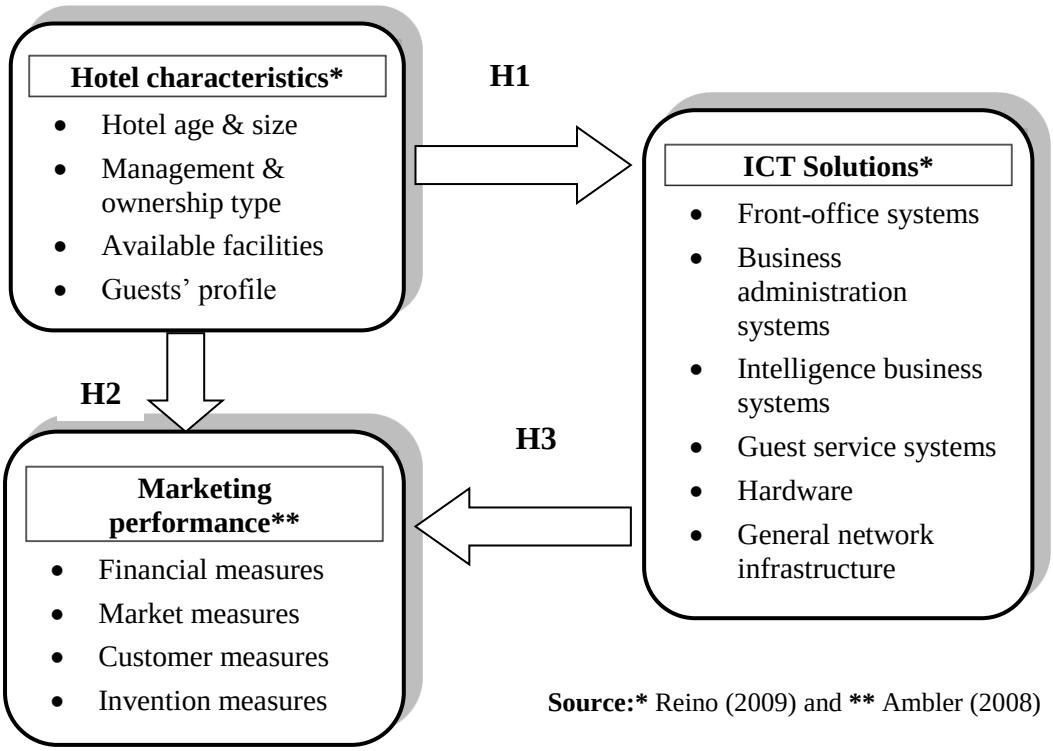
   1.2 Which aspects of marketing performance are most affected by ICT usage?

4.6.2 The proposed research framework

This research can be accomplished by conceptualising, measuring and analysing information about the real use of ICT and the actual marketing performance of Jordanian hotels by means of numerical data representing full and clearly defined variables.

Consequently, this research proposes a conceptual framework relating to ICT and marketing performance, as shown in Figure 4.4, where ICT systems and hotel characteristics are the independent variables and marketing performance is the dependent variable. Figure 4.4

provides an overview of the framework of the study. The review of the literature has identified a number of hotel characteristics that may impact upon the adoption of ICT and marketing performance. This framework forms the basis of the development of the hypotheses of the study.



Source:* Reino (2009) and ** Ambler (2008)

Figure 4.4 Research Variables and their Relationships

4.6.3 Research measures and scales

4.6.2.1 Marketing performance

As defended in Section 4.3 (p.99), Ambler and Kokkinaki (2002) developed a model to evaluate the marketing performance by establishing the criteria of metrics selection and defining which metrics are used to measure marketing. This model is selected as it frequently cited and used in literature as well as it has a predictive power. As Table (4.4, p.102) showed, the marketing metrics proposed in Ambler and Kokkinaki's (2002) model like; profits, return on investment, market share, and customer loyalty and satisfaction had all been used in previous literature either separately or in combinations to evaluate the

marketing performance (e.g. Davidson 1999; Doyle 2000; Clark 2007; Baidya and Basu 2008; Grewal et al. 2009).

As table 4.4 (p.102) illustrated, marketing performance measures were classified in this research into four categories. The metrics in each category have been adopted from various studies as follow:

1. Financial measurements, i.e. turnover; and profit.
2. Competitive market measurements: i.e. market share; and occupancy rate.
3. Consumer measurements, i.e. perceived service quality; new customers gained; customer loyalty; customer satisfaction; brand awareness; and customer purchase intention.
4. Innovation measurements, i.e. number of new products/services launched; and revenue from these new products/services

As discussed in Section 4.2.7 (p.95), there are different perspectives of marketing benchmarks; these benchmarks stand as criteria against which marketing performance is assessed and they typically include: firm's past performance (e.g. last year's sales); competitors' performance (e.g. current market share of main competitors); written marketing plans (i.e. targets set in written marketing plans); or managers/experts' expectations (i.e. managers' realistic expectations about potential sales; e.g. 15% increase in unit sales). For conducting this study, the major competitors' performance was taken as a benchmark for marketing performance. Choosing major competitors' performance as a benchmark enables the firm to analyse how other firms achieve their performance in order to use this information to improve their own performance. The respondents were asked to rate their satisfaction with the marketing performance of their hotels for each of the 12 metises compared with their major competitors' performance. For example; the respondents were asked to rate their satisfaction with their market share relative to major competitors last year. The scale anchored from 1 (highly dissatisfied) to 5 (highly satisfied).

4.6.2.2 ICT adoption

The availability of ICT solutions rises with their adoption by the hotel establishments. However, as hotels adopt ICT to accomplish better performance, having ICT solutions is not good enough (Sirirak et al. 2011). The contribution of ICT towards better marketing performance depends on the availability of ICT solution as well as their integration with each other and the intensity of their use. Sirirak et al.'s (2011) research framework has three

constructs and indicators for ICT systems. The three constructs are: (i) the availability of ICT components; (ii) the integration of ICT components; and (iii) the intensity of ICT component usage. These antecedents were presented in their research model as constructs accompanied by their associated indicator variables of ICT systems in hotels.

Therefore, ICT adoption involves three issues:

(1) availability of ICT solutions;

(2) integration (interconnectivity) of ICT components; and

(3) intensity of ICT usage (Siguaw et al. 2000; Ham et al. 2005; Law and Jogaratnam 2005; Sirirak et al. 2011).

As discussed in Section 4.5 (p.113), the major items of ICT components in each hotel's operational domain have been adopted from Reino (2009). In the process of designing the questionnaire, some ICT solutions were added, removed or improved to suit the research context as suggested by Sirirak et al. (2011). For example, the availability of specific social media platforms was added. Following the suggestions of Sigala (2003) and Sirirak et al. (2011), the integration of ICT systems (i.e. the interconnectivity) were evaluated using the number of ICT linkages amongst these systems. On the other hand, the intensity of ICT usage indicates how regularly the hoteliers/customers use the available ICT solutions (Sigala 2003; Sahadev and Islam 2005; Sirirak et al. 2011). Therefore, the intensity of ICT usage was measured by how the hoteliers think that these systems are important for hotel operations. Table 4.7 illustrates the items and scales for ICT. There are 48 items for measuring ICT in this research divide into seven categories. The research investigates the availability and integration (interconnectivity) of these components by asking the respondents if they have these components or not and whither these components are connected to other component (e.g. a Property Management System) or not.

The intensity of ICT usage was measured by using a five point scale. The respondents were asked to rate the overall relevance of ICT components at their hotels to their business performance. For example; the respondents were asked to rate the overall relevance of the nine components of the 'general ICT infrastructure' (e.g. the Broadband Internet Access) to their business performance, if available at their establishment. In this group, a five point Likert-scale adopted from Reino (2009) were used (i.e. not available, limited usage, average usage, high usage, or essential). As can be seen in Table 4.7, the availability of 48 different items of ICT was assessed by Yes/No Scale. Then the number of total ICT system available in the hotel was used in data analysis to achieve research aims. On the other hand, the

connectivity of 28 different software was assessed by Yes/No Scale. Items in Social media, Hardware, and General Networking Infrastructures were excluded in connectivity measurement as they, by default, interconnected to the other systems. Then the number of total ICT system connected to other systems within the hotel was used in data analysis to achieve research aims. Finally, the usage level of each category and the total ICT usage were assed using five-point Scale and were used in data analysis to achieve research aims (refer to Section 6.4.9).

Table 4.7 Items and Scales for Measuring ICT

ICT Category	Number of Items	Scales		
		Availability Yes/No Scale	Connectivity Yes/No Scale	Usage 5-point scale
Hotel Front-Office Systems	4	√	√	√*
Reservation Systems	3	√	√	√*
Guest Service Systems	12	√	√	√*
Business Administration	6	√	√	√*
Business Intelligence	3	√	√	√*
Hardware	6	√	x	√
Network Infrastructure	9	√	x	√
Social Media	5	√	x	x

* The usage level of the item was calculated depending on its availability and connectivity.

Source: Literature review

4.6.2.3 Hotel characteristics

Both the level of ICT adoption and the level of marketing performance within the hospitality industry can be influenced by a number of factors such as hotel size and management style. In the literature, these factors can be separated into three groups, including:

1. characteristics of the property including size, star rating, ownership type, and management structure (e.g. Siguaw et al. 2000; Paraskevas and Buhalis 2002; Sigala 2003; Murphy et al. 2006),
2. characteristics of hotel guests including nationality, their purpose of stay and the pattern of their arrival (e.g. Reino 2009), and
3. characteristics of owners/ managers including age, and technical expertise (e.g. Sigala 2003; Murphy et al. 2006; Reino 2009).

4.6.4 Hypotheses development

Based on the literature review, three hypotheses were developed:

H_1: There is a significant correlation between Hotels characteristics and ICT usage.

H_1 is supported if the study shows that hotels with specific features in the survey average a higher score in ICT usage.

H2: There is a significant correlation between Hotels characteristics and Marketing Performance.

H2 is supported if the study shows that hotels with specific features in the survey average higher a score in the measures of Marketing Performance.

H3: The greater ICT adaptation the greater the measures of Marketing Performance.

H3 is supported if the study shows that organisations with higher ICT usage in survey average a higher score in the measures of Marketing Performance.

There are three antecedents of ICT adaptation; ICT availability, integration, and intensity. Hotel marketing performance is a composite concept which comprises financial, market, customer and invention measures, with all being objective measures by comparing them with compotators.

Based on Ambler and Kokkinaki's (2002) model, the researcher adopts four specific measures to translate marketing performance into tangible statistics. This hypothesis can therefore be divided into four sup-hypotheses according to the different measures of marketing performance. These sup-hypotheses are:

H_3a: The greater ICT usage the greater the financial measures of marketing performance.

H_3b: The greater ICT usage the greater the market measures of marketing performance.

H_3c: The greater ICT usage the greater the customer measures of marketing performance.

H_3d: The greater ICT usage the greater the invention measures of marketing performance.

Chapter 5: Methodology

5.1 Introduction

In the last chapter, the researcher introduced the theoretical framework and hypotheses development for this research. This framework is important to support the research instrument by developing items measured and scales for both ICT and the marketing performance. The framework presented in the last chapter was developed depending on the appropriate models for measuring ICT capabilities combined with the appropriate marketing metrics for hospitality providers.

This chapter is intended to address the fourth objective of this research (i.e. to construct a methodology for investigating the relationship between ICT usage and the marketing performance of Jordanian hotels). This chapter discusses the methodology used in this research and examines the issues associated with the adoption of ICT by Jordanian upscale hotels, as well as the relationship between ICT adoption and the marketing performance of these establishments. During this discussion, the research methodology for this research is defended in terms of its appropriateness and relevance to achieve research objectives. Several research methodologies are discussed by providing a review of the literature of research strategies, research methods, and research methodologies applied in the fields of marketing and ICT. Grounded in this analysis, the methodology for this research is defended in terms of its suitability to accomplish the main research objectives. The procedures that were taken to address the research design, data collection and analysis methods are also illustrated in this chapter. These procedures are addressed in light of the relevant research questions, research objectives and the research framework.

Therefore, this chapter consists of seven sections. It begins with a discussion of the research philosophy and the research methodology approach (Section 5.2). Then, it discusses the research design and the procedures and difficulties encountered during each stage of the research (Section 5.3). In Section (5.4), the design of the questionnaire for this research is presented. Section (5.5) provides a discussion of the pilot study while Section (5.6) clarifies the methods of data collection and analysis. Then, a brief review of the ethical considerations during the entire research process was presented in Section (5.7). A discussion of the validity and reliability of the research is also presented in the last section (Section 5.8).

5.2 Defining the Research Strategy

Many definitions of research were cited in the literature; one of which is defined by Krishnaswami and Satyaprasad (2010):

> Research simply means a search for facts- answers to questions and solutions to problems. It is a purposive investigation. It is an 'organised inquiry'. It seeks to find explanations to unexplained phenomenon, to clarify the doubtful propositions and to correct the misconceived facts (Krishnaswami and Satyaprasad 2010, p.2).

Saunders et al. (2012, p.5) defines research in general as: "something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge about the phenomenon under study". Research is an essential to business studies; Hair et al. (2007, p.4) propose it as the "discerning pursuit of the truth". However, there is no consensus in business literature about how it should be precisely defined. Collis and Hussey (2009, p.3) state that, "research means different things to different people".

Moreover, Remenyi et al. (1998) and Bryman and Bell (2011) contend that business research is treated as a component of social science because it deals with humans and organisations that cannot be predicted. Therefore, business research process is shaped by the researcher's own thoughts about the development of knowledge and the nature of social science.

5.2.1 Ontology and Epistemology

In context of social science, any study reflects different philosophical assumptions about the nature of social science and the nature of society. Therefore, the process of undertaking any research is governed by the researcher's philosophical standpoints (i.e. paradigm) of the research. A research philosophy is a belief regarding the way in which data about a phenomenon should be collected, examined and analysed to interpret findings. Burrell and Morgan (1979) emphasise that there are several philosophical assumptions that directly influence the adoption of a specific research methodology and forming the selection process of a suitable research paradigm. These assumptions are views about the nature of reality (i.e. ontology); the nature of knowledge (i.e. epistemology); as well as about human nature.

To understand any research paradigm, three considerations must be taken into account; ontology, epistemology and methodology (Bryman and Bell 2011; Creswell 2009). Consequently, research in the social sciences can be approached from different viewpoints

and can use differing methodologies. Researchers have revealed that research philosophy is related to the development of knowledge and its nature. Therefore, any social study should reflect the various philosophical assumptions about the nature of society and the nature of social science.

Ontology answers the question of “what is reality?” and there are two ontological positions. In the first (Realism), researchers posit that reality can be separated into variables that can be examined independently of each other (objectivism). In the second (Nominalism), researchers posit that reality cannot be separated from an individual’s perception as they are interconnected and mutually dependent (constructivism).

Ontologically, this study - following realism systems research - assumes that reality can be separated into variables that can be examined independently of each other (Crotty 1998). The social world is examined through investigating the relationship between different variables. Meanwhile, ICT usage and the marketing performance of hotels do not exist apart, and hence cannot be measured in a subjective way. Unlike the constructive perspective, which assumes the discovery of subjective social reality, this study regards social reality to be objective in nature and that it can only be realised (Crotty 1998).

Epistemology, on the other hand, is concerned with the nature of the relationship between the researcher and what is being researched. The term epistemology (i.e. what is known to be true) as opposed to doxology (what is believed to be true) encompasses the various philosophies of research approach. It involves knowledge and embodies a certain understanding of what is entailed in knowing, that represents how we know what we know (Crotty 1998). Hamlyn (1995, cited in Crotty 1998, p.8) argue that epistemology deals with "the nature of knowledge, its possibility, scope and general basis”. Furthermore, Maynard (1994, p.10) explains that, "epistemology is concerned with providing a philosophical grounding for what kinds of knowledge are possible and how we can ensure that they are both adequate and legitimate". Hence, epistemology is coupled with ontology, which is concerned with "what kinds of things really exist in the world” (Hughes and Sharrock 1997, p.5). However, Crotty (1998, p.3) defines epistemology as "the theory of knowledge embedded in the theoretical perspective and thereby in the methodology". Epistemology is concerned with the acceptable of knowledge in the study field (Saunders et al. 2012).

Major types of epistemology are: objectivism, constructionism, and subjectivism (Crotty 1998; Saunders et al. 2012):

1. Objectivism (i.e. Positivism) means that meaning and meaningful reality exists as such apart from the operation of any consciousness (Crotty 1998). It argues that "knowledge is something which can be acquired" and it represents "the position that social entities exist in reality external to social actors" (Saunders et al. 2012, p.131). Positivism searches for regularities and causal relationships of the constituent parts that constitute happenings in the social world it in order to explain and predict them.
2. Subjectivism (i.e. Anti-positivism) refers to the meaning comes from anything but the object to which it is ascribed, that means the object itself makes no contribution to the meaning that is imposed on the object by the subject (Crotty 1998). Saunders et al. (2012, p.132) defines a subjectivist view as; "social phenomena that are created from the perceptions and consequent actions of social actors".
3. Constructionism maintains that "meaning comes into existence in and out of human engagement with the realities in the world" (Yang 2005, p.77). This view argues that subjects and objects emerge as partners in a generation of meaning (Crotty 1998). Constructionism can be defined as "the view that all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context" (Crotty 1998, p.42). It views all of our knowledge as "constructed" in that it is depending on human perception, convention and social experience.

Regarding the human nature, Burrell and Morgan (1979) suggested that human nature may be viewed from the determinism view which means that human beings and their experiences or activities are determined by the environment in which they are placed or from voluntarism view which means that human beings are creators of their environment.

5.2.2 Methodological approach

According to Saunders et al. (2012), there are two approaches to research; deduction and induction. These two approaches delineate the nature of the relationship between research and theory (Collis and Hussey 2009; Bryman 2012). In accordance with the deductive approach, researchers presume their studies' hypotheses based on acknowledged facts (theories) and translate them into functioning terms and test them in empirical ways by using

statistical methods (Bryman 2012; Saunders et al. 2012). The deductive approach, therefore, involves moving to the specific inquiry of the research from the general theoretical position. As a result, the deductive approach facilitates in confirming, modifying, or rejecting theories from which hypotheses were deduced.

The inductive approach, on the other hand, commences from a set of observations to build a theory. Theory is created through establishing general propositions about the nature of what has been observed over a period of time. In general, the inductive approach involves moving from the specific to the general. Figure 5.1 shows the two approaches.

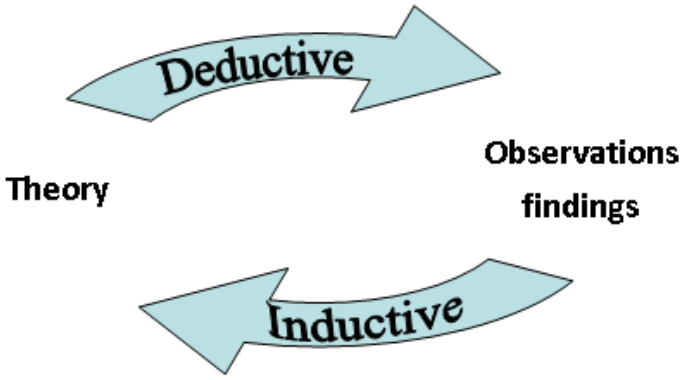


Figure 5.1 Research Approaches

5.2.3 Research paradigm

In order to take a more systematic approach to fulfilling the research aims of this study, it is essential to understand the philosophical viewpoints (paradigm) of this research. Social science research can be approached from different standpoints and can use different methodologies. Table 5.1 summarises the main assumptions of the main research paradigms.

In this research, a positivism (i.e. objectivism) understanding is adopted to investigate the relationship between "Information Communication Technology (ICT)" and "marketing performance" in upscale hotels in Jordan. The review of literature has revealed that there are limited empirical studies to determine the impact of ICT on marketing performance of Jordanian upscale hotels. Such limitation caused Jordan to be poorly represented in the literature, and also to be poorly symbolised with measurement for marketing performance of its upscale hotels. Crotty (1998) argued that the positivism researchers seek for regularities and causal relationships of the constituent parts that constitute happenings in the social world it in order to explain and predict them. Also, Crotty (1998) argued that a positivist research provides evidence of formal propositions, quantifiable measures of variables, hypothesis

testing, as well as generalising from a particular sample to a large population, which is exactly the case of the current research.

Table 5.1 Assumptions of the Main Paradigms

Philosophical Assumptions	Positivism	Interpretivism
Ontological assumption (the nature of reality)	Reality is objective and singular, separate from the researcher	Reality is subjective and multiple, as seen by the participants
Epistemological assumption (valid knowledge)	Researcher is independent of that being researched	Researcher interact with that being researched
Methodological assumption (the process of research)	The process is deductive, study of cause and effect with a static design (categories are isolated beforehand). Research is context free. Generalisations lead to prediction, explanation and understanding. Results are accurate and reliable through validity and reliability.	Process is inductive. Study of simultaneous shaping of factors with an emerging design (categories are identified during the process). Research is context bound. Patterns and/or theories are developed for understanding. Findings are accurate and reliable through verification.

Source: Creswell (1998; 2009)

According to the outlined research aims (see Section 1.6, p.10); the subjectivism and constructionism approaches are not suitable for this study. Crotty (1998) argued that constructionism view objects emerge as partners in a generation of meaning (Crotty 1998) which is not the case of the current research. The aim of this study is to analyse the extent of ICT usage in Jordanian hotels as well as to assess the level of marketing performance in Jordanian hotels. Therefore, this study starts with predetermined variables and aims to testing a particular framework or theory, rather generating one. Positivism (i.e. objectivism) hence is adopted in this study.

5.2.4 Qualitative versus Quantitative research

According to Robson (2002, p.549), research methodology is "the theoretical, political and philosophical backgrounds to social research and their implications for research practice and for the use of particular research methods". Sarantakos (2013, p.465), defines it as "the theory of methods"; it is the way in which researcher makes sense of the object of enquiry. When considering the methodology that may be used in a research study, there are two main options; (1) quantitative methods and (2) qualitative methods (Bryman and Bell 2011; Sarantakos 2013). It is important to distinguish between these two methods in order to choose the most suitable approach for the purposes of this research.

Quantitative methods are used when a research study depends on statistical analysis in order to draw conclusions or to test hypotheses. Creswell (2009) points out that positivism (quantitative method) involves hypotheses testing after breaking down ideas into small ones. The advantage of quantitative methods is that the findings can be broad generalisability (Bryman and Bell 2011). Quantitative techniques typically work by proving or disproving a specific theory that was tested (Sarantakos 2013). According to Holland and Campbell (2005), quantitative methods are valuable for producing standardised numerical data, as well as explaining and predicting a relationship for a considerable population with a decent degree of confidence.

Qualitative research, by contrast, bases its conclusions on discussions, knowledge and thinking in order to help to advance the understanding of an area of research (Sarantakos 2013). Qualitative methods use strategies of inquiry such as narrative, phenomenology, ethnography, grounded theory and case studies (Bryman and Bell 2011; Creswell 2009). Qualitative research does not produce generalisable results and nor is it supposed to. For Golafshani (2003, p.600), "Unlike quantitative researchers who seek causal determination, prediction, and generalisation of findings, qualitative researchers seek instead illumination, understanding, and extrapolation to similar situations". Qualitative methods are descriptive or exploratory in nature and are not generally employed when theory testing is required (Babbie 2013).

The difference between quantitative and qualitative approaches lies in the nature of how data is collected and the way in which this data is analysed. In order to go beyond the limitations of a single approach, mixed methods may be used to provide more comprehensive answers to research questions. Mixed methods focus on collecting, mixing and analysing both quantitative and qualitative data (Driscoll et al. 2007). Although there are many benefits of mixed methods, there are also many limitations. The fact that is it time consuming and costly

are the main disadvantages of mixed methods. Furthermore, unravelling conflicting results and analysing quantitative data qualitatively needs to be addressed.

In order for a piece of research to accomplish its aims it must first recognise and employ suitable techniques and tools (O'Connor 2001; Thietart 2001). The researcher appreciates that no research paradigm is better than another since each is suited to its particular purpose. However, as suggested in the previous sections, the main purpose of this study is to investigate the relationship between ICT and the marketing performance of Jordanian hotels. This purpose can be accomplished by conceptualising, measuring and analysing data about the real use of ICT and the actual marketing performance of Jordanian hotels.

Creswell (2009) proposed three practical criteria for deciding which research approaches to use; a) the nature of the research topic, b) the available time the researcher has and c) the degree to which the researcher is ready to indulge risk. Selecting either the subjective or objective divide on the assumptions ontology, epistemology, and human nature about social science can lead in implementing different methodologies of conducting research even on the same phenomenon. Taking these criteria into account, this research is mainly deductive based on quantitative methodology of primary data collection and analysis. The reasons behind this choice are that:

1. The literature of ICT and MPM allows the researcher to define a theoretical framework and build hypotheses, as recommended by Hathaway (1995) and Sekaran (2013), which lend them more readily to the deductive approach.
2. The natural setting: informed by an objectivism perspective, the emphasis of this study is on understanding the relationship between "Information Communication Technology (ICT)" and "marketing performance" in upscale hotels in Jordan. Seen in this light, the principles of quantitative research are consistent with the needs of this study. In addition, quantitative techniques typically work by proving or disproving a specific theory that was tested (Sarantakos 2013). Therefore, the choice of quantitative research strategy is consistent with the aim of this research.
3. The analytical nature of the study, quantitative research is more structured than qualitative research within this study which facilitates a degree of openness to examine the ICT and MPM in the in the Jordanian hospitality context.
4. Generalisation; a quantitative survey approach try to find and identify relationships that are common across organisations and individuals and

therefore, provide a theory or general statement about the phenomenon being researched (Thietart 2001; Creswell 2009).

5. Causality; quantitative research is concerned with establishing a causal relationship between variables (Sekaran 2013).
6. Saving in effort and time; applying a cross-sectional survey methodology leads to saving time, resources and effort required in comparison with longitudinal methodologies (Courtheoux 2003; Creswell 2009).
7. Analysing the extent of ICT usage in Jordanian hotels and investigating the relationship between ICT usage and the marketing performance of Jordanian hotels do not require a close relation between the researcher and the participants. In this respect, quantitative research enables detecting the main trends in the relationship between ICT usage and marketing performance in Jordanian hotels depending only on the primary data analysis.
8. Also, the main outcome of this study is to enhance the understanding of the relationship between "Information Communication Technology (ICT)" and "marketing performance" in upscale hotels in Jordan. One of the key principles of quantitative research is the outcome rather than its focus on the process (Bryman and Bell 2011). The outcome of analysing the extent of ICT usage in Jordanian hotels is important as to ensure the validity of the entire research.

Further, the literature on the effects of ICT on the hospitality industry supports this choice. The researcher investigated the methodologies and methods used in the contemporary literature on the effects of ICT adoption in business and marketing performance within the hospitality industry for the period from 2012 to 2015. Table 5.2 illustrate a classification for this literature according to the methodology employed.

As illustrated in Figure 5.2, the majority (74%) of the 42 studies in this literature are practical. More than two thirds of these studies applied the quantitative methodology, 10% applied the qualitative methodology, 7% applied both the quantitative and qualitative methodologies, and 26% conducted conceptual and theoretical studies.

Therefore, this research involves a deductive method to generate and test hypotheses. An objectivist ontological position and a positivist epistemology are best suited to fulfilling the purposes of this research. By using quantitative methodologies, as a social approach rather than as a scientific laboratory method, this research involves methods to formulate more specific research questions and testable hypotheses to understand underlying relationships between ICT and marketing performance in Jordanian hotels.

Table 5.2 Classification for the Current Literature According to the Methodology Employed

Methodology	Literature
Conceptual	Chevers 2015; Li 2012; Law et al. 2013; Boon et al. 2013; Breznik 2012; Seng 2015.
Quantitative	Ansah et al. 2012; Aureli et al. 2013; Aziz et al. 2012; Berné et al. 2015; Bethapudi 2013; Buhalis and Mamalakis 2015; Fernandez et al. 2015; Ge et al. 2014; Jakovic and Galetic 2014; Jung et al. 2014; Kapiki and Fu 2015; Kim et al. 2015; Kucukusta et al. 2014; Mathur 2015; Mihalič and Buhalis 2013; Mihalič et al. 2015; Ngatia et al. 2014; Nwakanma et al. 2014; Paço and Pérez 2015; Richard 2013; Scaglione and Schegg 2015; Schegg and Scaglione 2013; Schegg et al. 2013; Šerić and Gil-Saura 2012; Šerić et al. 2014; Stienmetz and Fesenmaier 2013; Sun et al. 2015; Velázquez et al. 2015; Xiang et al. 2013.
Qualitative	Inversini and Sykes 2013; Murphy 2013; Paraskevas et al. 2015; Reino et al. 2013.
Mix	Minazzi and Lagrosen 2013; Pesonen et al. 2013; Verma et al. 2012.

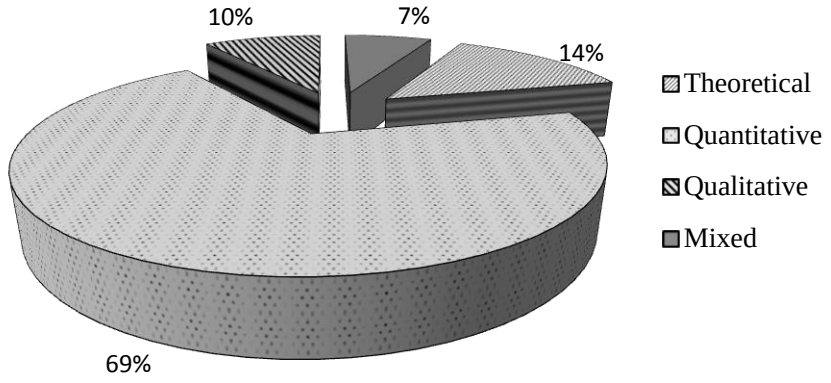


Figure 5.2 Methodologies Used in the Literatures on the Effects of ICT on Hotels

This study can be considered as a descriptive and explanatory study as its primary purpose is to examine the relationship between ICT and marketing performance of hotels in Jordan -as a developing country. This purpose can be accomplished by conceptualising, measuring and analysing information about the real use of ICT application and the actual marketing performance of Jordanian hotels by means of numerical data representing full and clearly defined variables. Obviously, this research involves quantitative methodologies to formulate more specific research questions and testable hypotheses to perceive and understand

underlying relationships. Quantitative research is when a piece of research relies on statistical analysis on which to draw conclusions or to test a hypothesis.

Research strategy is a "general plan of how the researcher will go about answering the research question(s)" (Saunders et al. 2012. p.159). Saunders et al. (2012) classify research strategies into six categories: survey; experiment; grounded theory; case study; ethnography, and action research. In this piece of work a survey strategy was used. Hair et al. (2011) identify survey as a method used to collect primary data from individuals. The data wanted can range from opinions, beliefs, attitudes and lifestyles to general background information on individuals, such as age, gender, income and education, in addition to company characteristics such as; number of employees and revenue (Hair et al. 2007). Alvesson and Deetz (2000) and Silver (2013) demonstrated that survey strategy involves the structured collection of data from a sizable population.

Creswell (2009) exhibited that the key criterion for choosing a particular strategy is the approach adopted in carrying out the research, which is in turn, determined by research objectives. According to Collis and Hussey (2009), implementing the deductive approach leads the researcher to employ experimental or survey strategies. In contrast, implementing an inductive approach leads the researcher to employ the strategies of case study, grounded theory and action research.

A survey research method was adopted to collect primary data through a questionnaire distributed to the investigated community (Jordanian Hotels). The rationale behind this choice is that:

1. It is consistent with the research approach in that it is usually related to the deductive approach and is the most popular and commonly used strategy in business and management research (Saunders et al. 2012).
2. The data collected from the survey is standardised, allowing easy statistical analysis and comparisons (Saunders et al. 2012).
3. The survey allows for the collection of a certain amount of data from a sizeable population in a highly cost-effective way (Bryman and Bell 2011).
4. The survey allows a significant degree of control over the research process and it is easy to undertake (Courtheoux 2003; Sekaran 2013).

This research employed a descriptive and analytical research approach. The descriptive part is needed to describe and identify the research factors and variables, which constitute the ICT application profile for Jordanian hotels, which are the independent variables in the

research. It is also used to identify empirically the marketing performance indicators in those hotels, which are the dependent variables in the research. The analytical methods were used to analyse the collected data, calculate and estimate the independent and non-independent variables, and then examine the relationships between these variable to achieve the objectives of this research.

5.3 Research Design

Research design is the structure and plan of research that allows the researcher to find answers to the research question (Bryman and Bell 2011). The choice of a research design is directed by the purpose of the research, the kind of enquiry, the degree of researcher involvement, the time period over which the data is to be collected, the stage of knowledge in the field and the kind of analysis to be carried out, that is, whether qualitative or quantitative (Sekaran 2013).

However, according to Sarantakos (2013) and Silver (2013), any research involves two fundamental phases; the first is the planning phase, in which researchers constructs the plan and the design of their research, and the second is the execution phase, in which the researchers collects and analyses their data. Bryman (2012, p.97) and Sarantakos (2013, p.106) summarised the key purpose of the research design in the following:

1- Makes the steps of the research design clear, allowing the researchers to predict and avoid eventual errors, distortions and bias.
2- Provide a systematic approach to the research process; consequently, assuring that all parts of the research will be addressed and that they will be accomplished in the right sequence.
3- Offer the researchers the essential framework for collecting and analysing their data and reflect the succession of the research process.

Babbie (2013) argued that if the researchers clearly identify what they want to find out and clarify the right research design, they will be able to reach their objectives. Consistent with Babbie's (2013) opinion, this research employed survey research to clarify the relationship between the adoption of ICT and marketing performance for upscale hotels in Jordan. In fact, survey researches are significant for evaluating and analysing the features affecting the successful adoption of ICT for improved marketing performance.

Researchers categorise research design into six groups: experimental, cross-sectional, longitudinal, case study, comparative and level of analysis (Bryman and Bell 2011). Cross-

sectional surveys are used to gather information on a population at a single point in time. This research design can be advantageous when the researcher needs to collect data on phenomena that cannot be directly observed. Moreover, a cross-sectional survey questionnaire can be used to determine the relationship between two factors.

The research design constructed here is based on the hypotheses formulated. These hypotheses were formulated inductively from the literature. To test hypotheses, both descriptive and analytical approaches were implemented to analyse data. The descriptive part is needed to describe and identify the research factors and variables, which constitute the ICT application profile for Jordanian hotels, which are the independent variables in the research. It is also used to empirically identify the marketing performance indicators in the hotels, which are the dependent variables in the research. In the analytical part, the research model was tested by examining the relationship between ICT usage by Jordanian hotels and the marketing performance for these hotels in order to explore how far hospitality management perceive these elements.

Figure 5.3 represents the research process, which has been conducted through six basic stages. In order to achieve the main aim and objectives of this study, the research process employed different procedures in order to achieve the research objectives. These procedures consisted of:

1. **A literature review to create a set of ICT usage classification schemes, and a set of measures for marketing performance.**

Prior to commencing the primary research the study focused on defining and framing the research question. This began by conducting a comprehensive review of the literature on the area of interest. A bottom-up approach (from latest research paper to older ones) has been adopted. Chapter three introduces the literature review for this research.

2. **An examination of the characteristics of hotels that use ICT, as well as investigating their distribution, classification, addresses, and other data.**

The unit of analysis is hotel because the research is to recognise the most frequently use ICT application in the hospitality industry. This research focused on upscale hotel in Jordan. For the research population, this research use hotels managers or owners. Hotel administrators are believed to be the most knowledgeable personnel regarding the hotel operations. From the recent record, there are 112 upscale hotels in Jordan with 28 hotels are 5-stars rating (JHA 2012).

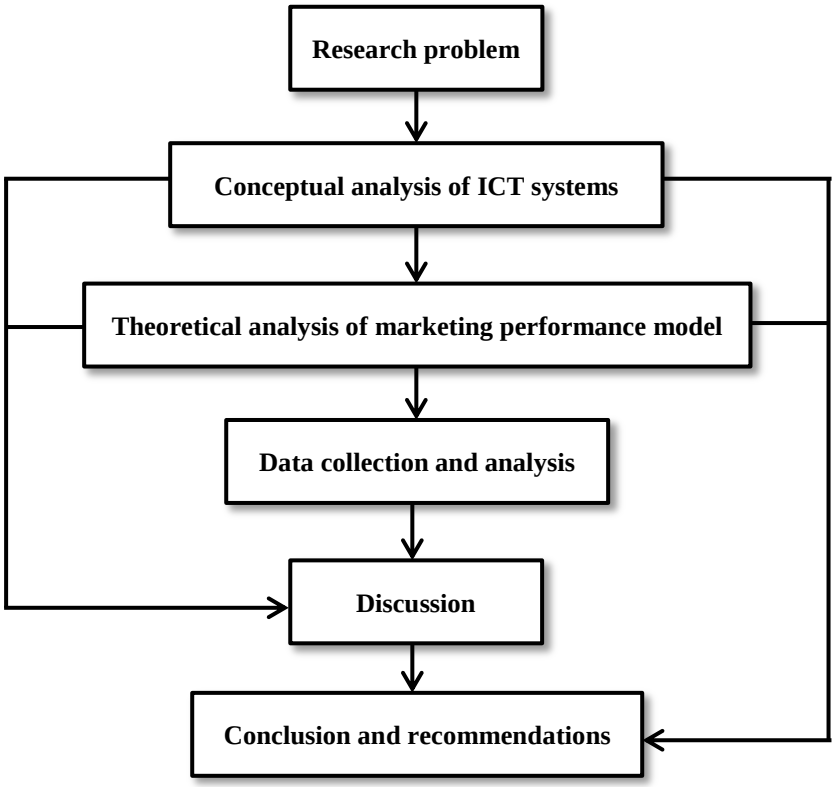


Figure 5.3 Research Design

3. Developing a proposed search tool: a questionnaire as a means of primary data collection.

This research is intended to be a quantitative research using a self-administered survey approach. The survey items for the ICT availability, integration, and intensity constructs was designed similar to the study of Sirirak et al. (2011). The details in Table 4.6 were used to inform the survey items for ICT construct which adopted from Reino (2009). Similarly, the details in Table 4.4 (p.102) were used to inform the survey items for the marketing performance construct, which is similar to the study of Ambler and Kokkinaki (2002). Based on the information in both Tables 4.4 and 4.6, it is evident that the survey items were adapted from various studies in ICT adoption and its impact on hotel performance domains (e.g. Scholochow et al. 2010; Ruiz-Molina et al. 2011; Aziz et al. 2012; Law et al. 2013; Nwakanma et al. 2014; Mihalič et al. 2015; Scaglione and Schegg 2015).

After developing the research tool the test of the credibility of this tool was conducted through distributing the proposed questionnaire to some university professors in the field of marketing, and to some hotels in order, to study the accuracy of questionnaire statements,

and questionnaire suitability for research objectives. The researcher then reconsidered the questionnaire statements in the light of the proposed amendments.

4. Data collection through distributing the questionnaire on-line.

A quantitative approach was used to gather the data by distribution of questionnaire to the targeted population. It involves gathering numerical data using structured questionnaires to collect primary from the hotels. This research is cross-sectional in nature because the data was gathered just once over a period of months.

5. Data analysis through appropriate statistics tests.

The nature of this research adopts the descriptive and analytical design research, and conducted in quantitative manner because it is targeted to examine and measure the level of usage of ICT application and marketing performance in hotels and the relationships between the two constructs.

6. Evaluating the results and making recommendations.

This was achieved through undertaking a quantitative investigation of 112 Jordanian hotels. The respondents were asked to provide details about the availability, interconnectivity and usage intensity of several ICT solutions. The respondents were, also, asked to rate their satisfaction about 12 selected marketing metrics. Chapter six (p.152) reports the analysis of data obtained from this survey. Depending on the literature, Chapter seven (Sections 7.3, p.211) and Section (7.4, p.217), discuss these result in more details.

5.4 Questionnaire Design

An online self-completion questionnaire was the research tool for primary data collection (see Appendix II). The content of the questionnaire was developed after a careful review of conceptual frameworks proposed in the literature and frequent discussions with the researcher's supervision team. This questionnaire was adopted, especially, from previous research on ICT usage within the hospitality industry from Reino's (2009) framework for eTourism capability and relative marketing performance measuring from the work of Ambler and Kokkinaki (2000). The questionnaire reflects this study's main question, which aims to test the relationship between ICT usage by Jordanian hotels and their marketing performance, through exploring the relationships between eight core dimensions of ICT and both financial and non-financial measures of marketing performance. The questionnaire, also

intended to identify the characteristics of the hotel and the respondent that may influence ICT usage by Jordanian hotels and their marketing performance.

Based on the above, the questionnaires were adopted for the current study and thus included four major sections. The first section included twelve statements related to the characteristics of the hotels adopted from Reino's research (2009). These statements were developed and re-written to make it suitable for use in the Jordanian context. This survey began with a question about the respondents' role in the business as a filter question to identify the correct respondents. Then, the respondents (the managers of Jordanian hotels) were requested to describe the features of their hotels (e.g. the star rating, management and ownership type, the geographical location, the number of bedrooms, and the number of full-time and part-time employees). In this part of the questionnaire, the number and the main features of the guests were also covered using four statements (i.e. the number of guests, the percentage of local/ foreign guests, the percentage of business/ leisure guests, and the percentage of guests who stay as individual/ couples/ families/ or groups). Finally, the respondents were requested to list the available facilities in their hotels (e.g. restaurants, gyms or conference facilities).

The second section of the questionnaire assessed the availability, the interconnectivity and the usage of forty-eight different systems of ICT that are used to support hotel operations in eight categories developed by Reino (2009). These items can be divided into three different groups depending on their physical nature. The first groups comprised the software systems that can be interconnected to additional software systems. A total of twenty-eight items of this type of software were included in the questionnaire (i.e. 4 items for Front-Office systems; 6 items for business administration systems; 3 items for business intelligence systems, 3 items for electronic distribution systems and 12 items for guest services systems). In this group, the participants were asked to state the availability and the interconnectivity of these given systems. The second group comprised of the hardware and networking infrastructures, which by default, can be interconnected to the other systems. A total of 15 items from this type were included in the questionnaire (i.e. 6 items for hardware, 9 items for the general networking infrastructure). In this group, the participants were asked to answer how they would rank their usage of a given system on a five point Likert-scale (i.e. not available, limited usage, average usage, high usage, or essential). The third group comprises the availability of the most common social media (e.g. Facebook and Twitter). Finally, an additional question was provided for respondents to list any further ICT systems that not listed in questionnaire.

The third section of the questionnaire includes twelve statements related to marketing performance measuring adopted from Ambler and Kokkinaki (2000) and developed by Ambler et al. (2004), Da Gama (2011a) and Zubair and Imran (2011). In this section, the respondents were asked to rate their satisfaction with the marketing performance of their hotels for each of these statements based on the five point Likert-scale (i.e. completely dissatisfied, somewhat dissatisfied, neither satisfied or dissatisfied, somewhat satisfied and completely satisfied). In order to complete this part of the questionnaire accurately, the respondents were advised to confer with the marketing manager in their hotel for appropriate assistance.

The fourth section includes five statements which were taken from the instrument reported by Reino (2009) to explore respondents' experience on ICT beside their demographics (e.g. age and gender). Respondents' expertise in ICT was measured by questions built on four-point scale (i.e. none, some, competent, or expert). The participants were requested to answer how they would rank their experience on the general ICT, the general business ICT and the industry-specific ICT. Moreover, the participants were asked to state how long they have worked for or owned the business to evaluate their overall experience in the hotel industry. At the end of the questionnaire the respondents were asked (optionally) to provide their eMail if they wished to receive a summary of the research results.

According to Hair et al. (2007), Bryman (2012) and Zikmund et al. (2013) there are some advantages of using the online self-administered questionnaire. One of these advantages is the low cost involved when compared with administering interviews; since it can save the researcher's time by covering a wider area and a large quantities at the same time. Moreover, online self-administered questionnaires are more convenient for respondents as it gives them the freedom to answer in their own time and at their own place. Another advantage is that it eliminates the interviewer (i.e. the researcher) influence.

In spite of this, it cannot be claimed that the questionnaire is perfect, as there are some disadvantages attached to this type of data collection. For example, it is not possible to know who actually filled in the questionnaire as well as the probability of receiving a low response rate (Bryman 2012). In order to reduce these weaknesses, many considerations were taken into account during the questionnaire design and data collection, such as; sending the questionnaire exclusively to people who are in a position to respond appropriately, ensuring that the questionnaire is interesting and topical, as well as providing assurances of confidentiality and anonymity for the respondents (see Section 5.9). Furthermore, the

researcher used personal communication during data collection to insure a high responses rate from the right people (see Section 5.10).

Another disadvantage for an online questionnaire is that there is no one who can help the respondents when they need clarification for answering some questions (Creswell 2009). In order to reduce the chances that the managers may not have had a clear understanding of the terms used in questionnaire, the author attached a glossary of terms in the questionnaire (see Appendix III). Respondents were able to access these definitions as well as any additional information by clicking links attached with most of the questionnaire statements.

Another disadvantage to this type of data collection was the probability of losing data when the respondent did not answer certain questions. To reduce the amount of missing data, almost all statements in the questionnaire were obligatory to answer; the respondents had to choose an option for the statements before being able to submit the questionnaire. However, some statements had additional options (e.g. other) to be chosen if the respondent did not know the answer or if the answer was not covered by the options provided by the author.

The research developed and deployed in this questionnaire was via the Web using the service offered by 'Bristol Online Surveys' due to its easy-to-use interface that allowed setting-up, conducting and analysing questionnaires without the need for a complicated technical knowledge. The questionnaire comprises three Webpages (see Appendix II). The opening page (i.e. welcome page) explains the aim and importance of the study, encouraged the participants to respond, and insures confidentiality and anonymity. The second page has all the questionnaire statements and by answering these questions the respondent will reach the final page (i.e. the thank you page).

5.5 The Pilot Study

A pilot study is the final stage prior to performance of a full-scale primary data collection from the field. It is an important step for the success of any field work as it can achieve a better understanding of the research context and phenomenon. Pilot studies are used in order to evaluate the time, the cost, the adverse events as well as the feasibility. Moreover, Saunders et al. (2012, p.451) states that "the purpose of the pilot test is to refine the questionnaire so that respondents will have no problems in answering the questions and there will be no problems in recording the data, in addition, it will enable you to obtain some assessment of the questions' validity and the likely reliability of the data that will be collected".

Thus, even though the questionnaire was built on base of the relevant literature, the researcher conducted a pilot study from March 2013 to May 2013 to ensure that the data that would be gained from the questionnaire would be valid and reliable. The first phase of this pilot study was conducted in the UK by inviting some of the Ph.D. students and academic staff from Queen Margaret University to participate in this pilot study and to provide their feedback. Then, the researcher sat with some of the respondents with whom he was already familiar and discussed the questionnaire in an attempt to achieve the best wording for the questions. The second phase of this pilot study was conducted in Jordan by undertaking personal visits or establishing communication with four Jordanian hotel managers, in order to introduce himself and his study. These kind of personal visits and communications were very important to build trust with participants, to encourage them to participate in the pilot study, setting a deadline for completing the online-questionnaires and returning the feedback. It is useful to pilot the questionnaire with a small sample of respondents to check its suitability for achieving the research aims and objectives (Hussey and Hussey 1997).

The aim of this pilot study is to establish that the proposed questionnaire is understandable and clear to the members of the target population. Thus, in the both phases of the pilot study, the participants were asked if there were any questions that they believed to be important to be included; if the instructions was clear enough; if there any unclear or ambiguous question; and if there were any significant omissions topic. Furthermore, participants were asked to add any further comments or suggestions. Finally, minor adjustments were made on the basis of the responses from the pilot study and the discussion with relevant people. As a result, the researcher was able to confirm that the questionnaire was suitable and appropriate for the aims of the study.

5.6 Data Collection and Analysis

As outlined before, the target population for this research were three-to-five-star hotels in Jordan. These categories were chosen as they are considered the most innovative and dynamic hotels, as they have a wider range of potential and possibilities. These hotels are more inclined to adopt ICT (Siguaw et al. 2000; Sahadev and Islam 2005; Daghfous and Barkhi 2009). These hotels have unique features of related to their size and the types of tourism they cater for. The hospitality sector database held by JHA (2012) comprises 112 establishments, including twenty-eight five-star, twenty-seven four-star and fifty-seven three-star hotels (see Appendix V). A large number of theoretical and empirical studies have mostly focused on the managers' perceptions of different ICT solutions within the hotel

context (e.g. Siguaw et al. 2000; Lee et al. 2003; Sigala 2003; Law and Jogaratnam 2005; Sahadev and Islam 2005; Ruiz-Molina et al. 2011).

The researcher applied the survey research approach (online self-completion questionnaire) to collect primary data through a questionnaire distributed to the investigated community (Jordanian upscale hotels). The use of online questionnaires allows large amounts of data to be collected quickly, easily coded and analysed.

Data analysis started with descriptive statistics to identify the profile of respondents and the overall picture of the respondents' ICT usage rates and their marketing performance. The next part of the data analysis conducted inferential parametric statistics using the SPSS software in order to investigate any relationships between ICT use and marketing metrics. These statistics were also used to investigate whether any factors relating to the characteristics of hotels affect ICT usage and marketing performance levels.

Quantitative data from the on-line questionnaire survey were analysed by utilising the Statistical Package for Social Science (SPSS) version 19.0. After considering the employment of applicable statistical tests in data analysis, several statistical techniques, which included Cronbach's coefficient alpha method, descriptive statistics, the chi-square test, independent sample t-test, one-way analysis of variance (ANOVA) and Pearson correlation analysis, were considered to be the most suitable and relevant to provide answers to the research questions (see Table 5.3).

Table 5.3 Summary of the Statistical Techniques Utilised in Data Analysis

Statistics	Objective	Purpose of Implementing
The Cronbach's alpha	To analyse the instrument reliability	
Descriptive Statistics	To describe the data regarding the characteristics of hotels and respondents	To answer Research Questions Q1.1, Q1.2 and Q2.1
The t-test, ANOVA, Mann-Wetny	To determine where the differences lie in order to compare the means between two groups of hotels in each	To answer Research Questions Q1.3 and Q2.2
Pearson and Spearman ‘s rho correlation	To determine there is any relationship between two variables	To answer Research Questions Q3.1 and Q3.2

In order to obtain primary information about research variables in understanding and interpreting way; descriptive statistics (e.g. frequency distributions, percentages and means) were used to quantify the presence and the attributes of the data regarding the response rate,

the profile of surveyed hotels, ICT usage by these hotels and their marketing performance levels. These descriptive statistics are used to consolidate raw data into a summary that provides insights into the main trends and patterns in these data (Veal 2005; Zikmund et al. 2013). Descriptive statistics are commonly used in the previous literature (e.g. Ratner 2002; Khemthong 2007; Steed and Zheng 2009; Reino 2009). In particular, frequencies were the most common statistical techniques used in hospitality marketing research (Bowen and Sparks 1998).

This chapter also determines whether Jordanian upscale hotels differ from each other on the extent they utilise ICT in their operations depending on some of their features and facilities (e.g. size, age and location). In addition to this, it also examines whether it is possible to observe significant differences amongst these hotels on their marketing performance depending on the same features and facilities. There are several different statistical tests can be used to examine the differences, and the best one to choose is depending on the type of data. Figure 5.4 shows the most common test of difference and when to be used.

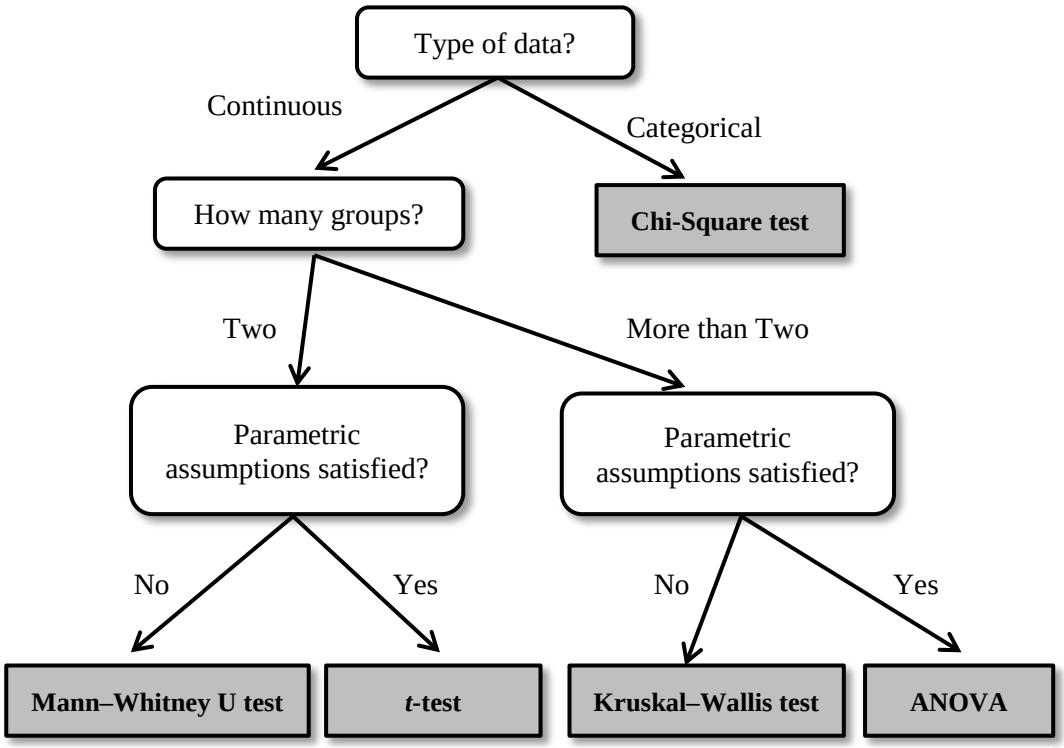


Figure 5.4 Flow Chart for Testing Differences in Data Analyses

Source: adopted from Gray and Kinnear (2012) and Gerwien (2014)

As it shown in Figure 5.4, Chi-square test for independence (X^2) is used to compare the means from two or more categorical variables (Gray and Kinnear 2012). Moreover, Chi-square test is also used to find if there is a statistically significant association amongst these categorical variables, thus, it is also called the chi-square test of association or Pearson's chi-square test. Categorical variables can be 'Nominal' variables which have two or more categories without intrinsic order (Dietz and Kalof 2009), e.g. categorising respondents as either male or female. Alternatively, categorical variables can be 'Ordinal' variables which have two or more categories that can be ordered or ranked- e.g. categorising responds as completely dissatisfied, somewhat dissatisfied, somewhat satisfied, etc.

However, if the comparison is between two or more of scale or continuous variables (e.g. age or a ratio), the test will depend on whether the parametric assumptions are satisfied or not. There are three assumptions for parametric tests; firstly, the sample should be independent or unbiased, which means that observations have no effect on one another and there is no basis for pairing the scores in one observation with those in the other. In this research all data are obtained from independent sample and therefore this assumption is verified for all the tests.

Secondly, data should be normally distributed. In order to verify this assumption, the Shapiro-Wilk test is used by means of SPSS as our numerical means of assessing normality (see Table.1, Appendix VI). The Shapiro-Wilk test is more suitable for small sample sizes (i.e. observation < 50), however, it can also handle observations as large as 2000 (needs source). Furthermore, following the suggested benchmark of West et al. (1995) normality of the observed variables (i.e. Univariate Skewness ≤ 2 and Univariate Kurtosis ≤ 7) has also been checked.

The third assumption for parametric test is the homogeneity assumption which is checked by means of SPSS using Levene's test. If the value of Levene's test is bigger than 0.05, the significant value of equal variances assumed was used to interpret the data (Munro 2005; Field 2013). However, if the value of Levene's test is less than 0.05, then the assumption of homogeneity of variance has been broken, therefore the significant value of equal variances is not assumed and was used to interpret the data (Munro 2005).

As it shown in Figure 5.4, when comparing two continuous variables, the independent sample t-test is used to compare the means from two independent samples when parametric assumptions are satisfied (Munro 2005). Both the t-test's effect size and the t-test's statistical significance are the major outputs of the t-test. Effect size specifies whether that difference is large enough to be practically meaningful and the statistical significance indicates whether

the difference between sample averages is likely to represent an actual difference between groups. By using the independent sample t-test, we can check if the null hypothesis (i.e. the mean of the two variable are the same) is supported or rejected. The nonparametric equivalent of independent sample t-test is the Mann-Whitney u test which compares differences between two independent groups when the dependent variable is either continuous or even ordinal, but not normally distributed. Mann-Whitney U test is commonly used in the previous literature (e.g. Reino 2009).

However, ANOVA (i.e. Analysis of variance) is used to assess the statistical differences between the means of two or more groups (Munro 2005). ANOVA is used as a multiple test (Field 2013), and requires interval or ratio data for independent or dependent variables. ANOVA generates the F-test which assesses the differences between the group means. However, ANOVA does not identify where the differences are. It can be used to determine that there are significant differences somewhere between the groups (Munro 2005; Field 2013). Therefore, we can use the Tukey's HSD and Duncan tests to identify where the differences are.

On the other hand, Kruskal–Wallis one-way analysis of variance is a non-parametric method for testing whether samples originate from the same distribution. It is an extension of the Mann–Whitney U test to three or more groups. It is used for comparing more than two samples that are independent, or not related. When the Kruskal-Wallis test indicates significant results, then at least one of the samples is different from the other samples (i.e. the null hypothesis is rejected). The test does not detect where the differences occur or how many differences actually occur. In this case, we can use the Tukey post hoc tests to identify where the differences occur.

This chapter also determines whether the availability and the amounts of certain features and facilities within a hotel have a correlation with regards to the extent that ICT is utilised in the operations of the hotel. In addition to this it also examines whether it is possible to observe a correlation between these same features and facilities of a hotel and the marketing performance. Then the relationship between the adoption of ICT in hotels and marketing performance for these hotels is evaluated before finally the original research hypotheses tested on the results garnered from the analysis on these relationships. There are several different statistical tests can be used to examine the relationship, and the best one to choose is depending on the type of data. Figure 5.5 shows the most common test of association and when to be used. To know whether two or more categorical (i.e. discrete) variables are related or not, Chi-Square tests for association can be employed. There are two post tests for

Chi-Square; the 'Phi' and the 'Cramer's V' tests which are used to test the strength of association between two variables (i.e. their values are between 0-1).

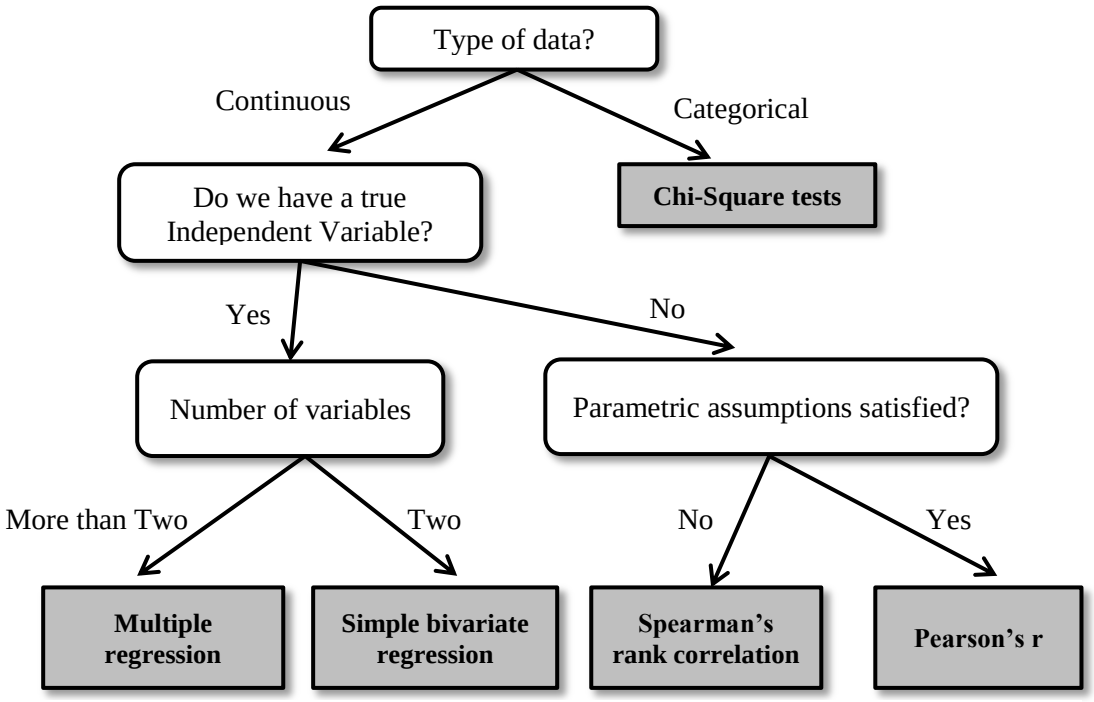


Figure 5.5 Flow Chart for Testing Association in Data Analyses

Source: Adopted from Gray and Kinnear (2012) and Gerwien (2014)

In statistics, researchers refer any statistical relationship between two random variables or two sets of data as 'dependence'. Correlation, here, refers to any of a broad class of statistical relationships involving dependence. Correlations are useful because they can indicate a predictive relationship that can be exploited in practice (Dietz and Kalof 2009). The most common of correlations tests is the 'Pearson correlation coefficient', which is sensitive to a linear relationship between two or more variables. Another common test for correlations is the 'Spearman's Rank-Order Correlation' which benchmarks monotonic relationship between two or more variables. The choice between these tests is depending on whether the parametric assumptions are verified or not. As Figure 5.5 shows, Pearson's r is used when the parametric assumptions are satisfied otherwise Spearman's will be more appropriate. Correlations tests are commonly used in the previous literature to investigate relationships (e.g. Khemthong 2007; Reino 2009). R value is always a number that ranges from -1.00 to + 1.00. Where a positive value of r suggests a positive relationship and a negative value of r suggests a negative relationship. A value of zero suggests no relationship,

and as *r* moves away from zero in either direction it suggests a stronger relationship. Table 5.4 below illustrates the strength of correlation results.

Table 5.4 Interpretation of the Strength of Correlation Results

R Value	Strength
R = 0.00	No linear correlation
0.00 < R ≤ 0.25	Very weak linear correlation
0.25 < R ≤ 0.50	Weak linear correlation
0.50 < R ≤ 0.75	Moderate linear correlation
0.75 < R ≤ 0.90	Strong linear correlation
0.90 < R ≤ 1.00	Very strong linear correlation
R = 1.00	Perfect linear correlation

Source: Gray and Kinnear (2012)

Linear regression is the next step up after correlation. It is one of the suitable applicable techniques for explaining and predicting the value of a variable (i.e. the dependent or the outcome variable) based on the value of another variable/s (i.e. independent predictor variable/s) (Crowther and Lancaster 2009). Depending on the number of variables (i.e. regressors), we can choose the simple bivariate regression if we have two variables or the multiple regression for more than two regressors (Gray and Kinnear 2012). With simple linear regression the key outputs are the R-squared value and the equation. However, in multi-regression the key outputs are the R-squared value and the influence of each predictor - i.e. the coefficient or Beta (β) - as well as the p-value for each predictor.

Before using simple linear regression, six assumptions should be verified first. (1) The variables should be continuous (i.e., measured at the interval or ratio level). (2) There should be a linear relationship between the dependent and the independent variables. (3) There should be no significant outliers. (4) Data needs to show homoscedasticity. In order to verify the assumption number 2-4, scatterplot can be used by plotting the dependent variable against the independent variable and then visually examine the scatterplot to check for linearity, outliers and homoscedasticity. (5) The observations should be independent and this can be checked using SPSS depending on the Durbin-Watson statistic which ranges in value from 0 to 4 with an ideal value of two (Joseph 2013). However, its values from 1.75 to 2.25 considered acceptable for linear regression. (6) The residuals (i.e. errors) of the regression line should be approximately normally distributed. This assumption can be visually checked using SPSS by generating a histogram for the residuals with a superimposed normal curve.

In multi-regression there must be two or more independent variables in the model. However, any of these independent variables should not highly correlate with each other (i.e. Multi-collinearity). The multi-collinearity can be identified using SPSS by the Variance Inflation factor (VIF), which is a statistic calculated for each variable in a model. A VIF greater than 5 indicate that the concerned variable is multi-collinear with others in the model and may need to be abandoned (Joseph 2013).

5.7 Ethical Considerations

The researcher considered particular ethical issues during the entire research process, especially during data collection and analysis. According to (Creswell 2009) the most important issues and concerns that the researcher had to consider and fulfil were: (i) informing the participants in detail about their involvements in the research (i.e. informing consent); (ii) avoiding harm and risk; (iii) allowing free choice; (iv) ensuring privacy; (v) ensuring confidentiality (promises that limits access on information); and (vi) ensuring anonymity.

These issues were addressed clearly by the researcher in the ethical approval form submitted to Queen Margaret University, the United Kingdom (see Appendix IV). The researcher explained and justified how the participants would be informed about the project and how the data would be collected. Further, assurances for avoiding any harm and risk to the participants during the data collection and analysis process were given as well as the free choice of withdrawing from the study at any time was assured. Likewise, ensuring privacy, confidentiality and anonymity of the respondents during the data collection and analysis process were provided for in the ethical application. As a result, all the collected data remained confidential and anonymous.

The researcher also clearly explained the purpose of the research in the introductory letter (see Appendix I). Failure to do so might have resulted in the participants revealing information they would otherwise not have revealed had they known the status of the confidant as a researcher (Bryman and Bell 2011). During the data analysis stage, the researcher had to maintain objectivity to ensure that there is no misinterpretation of the data that had been collected. Lack of objectivity at this stage was likely to distort the conclusions and any course of action that may arises from the study (Saunders et al. 2012).

5.8 Quality of the Research Methods

With the purpose of ensuring that the instruments developed for this study made precise and accurate measurements, it was necessary to assess the "goodness" of measures. There are three criteria for testing the goodness of measures: reliability, replicability and validity of the research (Bryman 2012). Furthermore, due to the descriptive and explanatory nature of this research, the quality of research methods also needs to be measured in terms of its usability. And finally, the consideration of possible sources of error is also useful for the appraisal of the research quality.

Reliability means that the instrument chosen gives consistent results of the scale over time, taking into consideration a margin error (Golafshani 2003; Creswell 2009; Bryman 2012). The assessment of the reliability guarantees that the data collection instrument is suitable in obtaining information regarding the topic under research. This kind of reliability has been ensured through a piloting process and the inclusion of comment boxes within the questionnaire.

According to Collis and Hussey (2009), research measurements or findings can be reliable if they produce the same results by re-testing them with the same test at a different time. There are three common ways to validate the reliability of the participants' responses to the questions: test and re-test method; alternate-form; and internal consistency method (Litwin 1995). Field (2013) argues that the internal consistency method, which is based on 'Cronbach's Alpha Test' the best way to assess the reliability of questionnaire responses statistically. According to Hair et al. (2007, p.243) "this type of reliability is used to assess a summated scale where several statements (items) are summed to form a total score for a construct".

The value of Cronbach's alpha coefficient can range from zero (i.e. no internal consistency) to one (i.e. complete internal consistency) (Bryman and Bell 2011). As a rule of thumb, the closer Cronbach's Alpha coefficient to 1 means higher intimal consistency and more reliable (Hair et al. 2007; Gray and Kinnear 2012; Davis 2013; Field 2013). However, Cronbach's Alpha value is inflated by a larger number of variables, so there is no set interpretation as to what is an acceptable alpha value. In general, researchers agree that an alpha value of at least 0.7 is considered acceptable for reliability (Sekaran 2013). However, Hair et al. (2007) suggest that values below 0.70 also can be realistically expected.

Replicability refers to the probability of repeating the research process, allowing other researchers to test the results and it typically occurs in quantitative research. The replicability of this study has been optimised by demonstrating the whole procedure for the selection of methods, measures, participants, and designing data collection instruments. Moreover, the implementing an online self-completion questionnaire without the intervention of a researcher reduces the possibility of bias and enhances the replicability of the study.

And finally, validity refers to the strength of the inferences in the research project. According to Litwin (1995), validity means that the data collection instrument is valid if it measures what it designed to measure. In other words, the instrument is valid for the research if it measures the research objectives (Bryman 2012). Ruane (2005) explained that validity is concerned with the extent to which a research tool gives the correct answer. Another issue related to validity is the extent to which the research results can be generalised to the total population. Therefore, it is important to ensure that a research tool (i.e. questionnaire survey) carefully reflects the correct meanings and connects to the research questions. There are different types of validity; the most common types included for the evaluation of the research project are the construct validity, the internal validity, the external validity, content validity and the ecological validity.

Construct validity, also termed measurement validity confirms that the measurement technique represents the concept under research. This type of validity has been addressed by means of a pre-test approach (i.e. pilot test) depending on research academics and professionals (i.e. the senior managers in Jordanian hotels) as outlined earlier in this chapter. Therefore, the development of the questionnaire for this study was based upon the results of the pilot study, as well as the findings from the relevant literature review. Ruane (2005) posits that a research tool should be pilot tested before conducting the empirical research to assess its validity. Furthermore, participants were given the opportunity to include further information within the comment boxes and a glossary was developed to assist participants in completing the questionnaire. In this way, it ensured that the survey questionnaire for this study would provide data that related to accepted meanings of the concepts involved.

Internal validity denotes the degree of confidence that the observations made on can really clarify the phenomenon and are not affected by further variables. Internal validity tends to be high in qualitative research as a consequence the contextualisation of the phenomena and the wide inclusion of variables in this kind of research. It is easier to challenge in quantitative research, where the degree to which further variables influence the phenomena under research is more difficult to track. Experimental design minimises the likelihood of biased

through the influence of additional variables when examining a cause and effect relationship, through the integration of a temporal dimension. However, the internal validity in cross-sectional research studies is limited, and can only support the identification of associations between variables, without inferences on the existence of a cause and effect relationship. In order to address the internal validity, many further variables that may influence ICT adoption and marketing performance was included in the data collection instrument depending on the academic literature.

External validity brings up the extent by which the results can be generalised to the entire population. In this research, surveying the entire population maximises the generalisation of the results. However, there are issues related to the electronic distribution of the data collection instrument, which might have possibly skewed the sample towards participants with knowledge about ICT, it is expected that this type of bias will equally affect the population used for benchmark from other country. Additional limitations could be connected to the low representation of hotels supporting some specific analysis.

Content validity relates to the extent by which a research mechanism collects all the elements which are specific to the domain of content. Content validity is one of the methods that evaluate the validity of an instrument by the judgement of a group of experts to ensure that the questionnaire includes an adequate and representative set of questions that reflect the real meaning of the concept (Litwin 1995; Zikmund et al. 2013). Content validity was also address through the placement of comment boxes throughout the questionnaire, enabling participants to introduce further ICT systems supporting their business operations and contributing to marketing performance.

Ecological validity refers to the ability of the research instrument to capture the daily life conditions, which is improved through methods like participant observation. Collecting data through an online self-completion questionnaire may provide results do not capture what happens in people's everyday life. In order to address the ecological validity, the data collection instrument was built upon the academic literature. Moreover, interviews with people from the industry were developed during pilot study.

Chapter 6: Research Analysis

6.1 Introduction

As outlined in Chapter Five, the quantitative methodology employed via the survey was selected as the most appropriate technique for primary data collection in this study. The first purpose of this method was to develop a profile of hotel businesses in Jordan, while the second purpose was to obtain information about whether Jordanian hotels utilised specific ICT based systems to support their activities. The third and final purpose of this survey was to obtain the perspectives of hotels managers about the marketing performance for their hotels. Precisely, the quantitative questionnaire survey was applied as a fundamental approach to test the research model and all of its hypotheses (H1, H2 and H3) and therefore to answer all research sup-questions (Q1, Q2 and Q3).

This chapter reports the analysis of data obtained from the questionnaire survey for Jordanian upscale hotels. As mentioned in chapter five, analysing data is the process of transforming data into information (Crowther and Lancaster 2009). In this research, the data analysis was conducted by using the Statistical Package for Social Sciences version 19.0 (SPSS 19.0). The author utilised quantitative methodology for its appropriateness to analyse the relationship between variables (Creswell 2009). Therefore, several statistical techniques were utilised in the analysis of the data and empirically used for testing the hypotheses.

Therefore, this chapter consists of seven sections. It begins with a discussion of the response rate and potential nonresponse bias from data collection (Section 6.2). Then, it presents a descriptive analysis of the features of Jordanian upscale hotels as well as some demographic characteristics of the participants (Section 6.3). In Section (6.4), the availability, connectivity and the extent of the usage of ICT systems by Jordanian hotels depending on seven ICT indexes are presented. Section (6.5) examines the effect of hotel characteristics in terms of type of management and ownership; the size and age of hotel; managerial experience on the extent of ICT usage. Then, an analysis of each of marketing performance metrics distinctly is presented in more detail in Section (6.6). A discussion of the effect of hotel characteristics in marketing performance is also presented in Section (6.7). The last section (Section 6.8) is to examine the relationship between the utilisation of different ICT systems and the marketing performance of Jordanian upscale hotels. Additionally, this section examines which aspects of marketing performance are more affected by ICT usage in Jordanian upscale hotels.

6.2 The Response Rate

The questionnaires were sent to the general managers of a total of 112 hotels, from which one hotel did not have a correct eMail address. Although these hotels are registered with The Jordanian Ministry of Tourism and Antiquities (MOTA 2009-2013), the database of MOTA (2009-2013) did not provide email addresses. Therefore, the researcher relied upon the database of JHA (2012). Sixty-one questionnaires which were sent out for the online survey were completed and returned and are illustrated in these results below. The response rate represents 54.5% of the entire number of Jordanian upscale hotels. Since every relevant hotel was invited to participate in the study; the survey produced a high volume of valid responses which is demonstrated when comparing the response rate with previous literature. Therefore this survey proposes an overall satisfactory response rate for an online survey (refer to Section 7.2).

Table 6.1 Response Rate by Star-Rating and by Geographical Area

		Three-Star	Four-Star	Five-Star	Total
Amman	Population	42	20	13	**75**
	Respondents	29	9	4	**42**
	Response Rate	**69%**	**45%**	**30.8%**	**56%**
Aqaba	Population	5	2	5	**12**
	Respondents	3	2	1	**6**
	Response Rate	**60%**	**100%**	**20.0%**	**50%**
Petra	Population	8	3	6	**17**
	Respondents	6	1	2	**9**
	Response Rate	**75%**	**33.3%**	**33.3%**	**52%**
Dead Sea	Population	0	1	4	**5**
	Respondents	0	1	3	**4**
	Response Rate	**N/A**	**100.0%**	**75%**	**80%**
Other	Population	2	1	0	**3**
	Respondents	0	0	0	**0**
	Response Rate	**0.0%**	**0.0%**	**N/A**	**0.0%**
Total	Population	57	27	28	**112**
	Respondents	38	13	10	**61**
	Response Rate	**66.7%**	**48%**	**35.7%**	**54.5%**

Table 6.1 suggests that an acceptable response rate of the different groups of hotels by star rating was obtained, ranging from a 35.7% response rate by hotels with five stars, 48% by those with four stars and 66.7% by those hotels with three stars. Furthermore, Table 6.1 indicates that there are differences in the response rate across geographical areas, ranging from 50% in Aqaba to 80% in Dead Sea. However, these present an overall satisfactory response rate from the regions containing the four main urban areas and attraction sites in Jordan. As described in Section 2.5, these four regions contain 86.1% of the whole hospitality sector in Jordan and 96.4% of this research population (Jordan three, four and five-star hotels). Moreover, as Table 6.1 shows, these four geographical areas contain all five-star hotels in Jordan, 96.6% of four-star hotels and 94.3% of three-star hotels.

With regard to potential nonresponse bias, Bryman and Bell (2011, p.177) state that; "the problem with non-response is that those who agree to participate may differ in various ways from those who not agree to participate, some of the differences may be significant to the research questions". There are several techniques to examine whether nonresponse represents a problem, these techniques include (i) examining and comparing the study's response rates with those of a previous study, (ii) comparing sample and frame estimates and (iii) comparing the findings of the study with those from external sources (Bryman and Bell 2011). The first two approaches are not, however, applicable in the case of this research because there is no precedent study could serve as a comparison basis. Some external data regarding the targeted hotels (i.e. Jordanian 3-, 4-, and 5-star hotels) are available and help by two different databases; JHA and MOTA. This external data is primarily regarding hotels age, number of rooms, employees and guests. Hence, to test the possible impact of nonresponse bias, the researcher compared the data arising from this study regarding hotel age, number of room and number of guest with the same kind of data from JHA and MOTA databases. Sections 6.3.1 and 6.3.2 present these comparisons. Overall, these tests show that the research dataset seems to be a good representation of the Jordanian hotel market in terms of these characteristics and subsequently, there is no effect of nonresponse in this research.

6.3 General Characteristics of the Respondents

This section is generally concerned with presenting a descriptive analysis of the features of Jordanian upscale hotels as well as some demographic characteristics of the participants. In the first part of the questionnaire, the respondents (the managers of the hotels) were requested to describe the features of their hotels. Additionally, in the closing part of the questionnaire, the respondents were asked to provide some limited personal information

about their experience, as well as, their age and gender. The reason for doing so to provide reliable insights into the composition of the Jordanian upscale hotels and to allow hotel features and managerial experience to be related to the extent of ICT usage and marketing performance levels for the Jordanian upscale hotels.

6.3.1 Profiles of surveyed hotels

Since the results from the previous section proposed that the response rate is an acceptable representation of the Jordanian upscale hotel market, descriptive statistics in terms of frequencies and percentage (refer to Section 5.6) were utilised to illustrate the characteristics of Jordanian upscale hotels. The information available for analysing the Jordanian upscale hotels (beside those relating to their star rating and area of location) are: type of ownership and operating status; hotel size (based on number of bedrooms and number of employees); age of hotel; hotel facilities; and characteristics of the guests of hotels. Table 6.2 provides a summary of the 61 participating upscale hotels in Jordan.

As Table 6.2 illustrates that despite the fact that most of the respondent hotels (80%) are owned by companies, approximately a half of the respondent hotels are managed as a part of a chain. Only three independently owned hotels are managed as a part of chain and all of them were three-star. Yet, by using Chi-square, Phi, and Pearson Correlation (refer to Section 5.6), data analysis shows that there is no significant relationship between type of Ownership and type of Management (χ^2= 3.40, $p > 0.05$).

Regarding hotels age, almost one-quarter (24.6%) of the surveyed hotels were between 16 to 20 years old while 23% were five years old or less. To make sure that we have accurate data from the surveyed hotels; the researcher compares the data regarding hotels age to JHA database (refer to Appendix: V) to see if the surveyed hotels and the overall market of Jordanian upscale hotels have the same distribution of hotel age. However, the data regarding hotels age do not meet the requirements for a parametric test (i.e. these data are not normally distributed). Therefore, "Independent Samples Mann-Whitney U test" was employed, rather than its equivalent parametric 'Independent Sample T-Test', to test the null hypothesis that two populations are the same. Results indicate that the surveyed hotels have the same distribution of hotel age as the overall hotels market (U = 157.5, Z = 0.26, $p >$ 0.05), thus, it appears that the surveyed hotels are an accurate and reflective representation of the Jordan upscale hotels market.

Table 6.2 Profiles of Jordanian Hotels

Hotel Characteristics	Categories	Frequency	Percentage
Type of hotel management	Independent	31	51%
	Chain	30	49%
Type of hotel ownership	Sole ownership	12	20%
	Company	49	80%
Age of hotel	5 years or less	14	23%
	6-10 years	5	8.2%
	11-15 years	13	21.3%
	16-20 years	15	24.6%
	21-25 years	5	8.2%
	More than 25 years	9	14.8%
Number of full time employees	Less than 25 employees	21	34.4%
	25-49 employees	19	31.1%
	50-74 employees	7	11.5%
	75-99 employees	7	11.5%
	100 employees or more	7	11.5%
Numbers of hotel's rooms	20-79 rooms	34	55.7%
	80-139 rooms	5	8.2%
	140-199 rooms	7	11.5%
	200-259 rooms	6	9.8%
	260-319 rooms or more	9	14.8%

By considering the hotel size as expressed by the total number of rooms, the data analysis finds that more than half (55.7%) of the surveyed hotels were small hotels that have fewer than 79 rooms while only 14.7% of the surveyed hotels were big hotels that have 260 rooms or more. Once more, as the data about number of rooms is available for each hotel in the whole population of Jordan upscale hotels (refer to Appendix V), 'Independent Sample T-Test' was established to see if the respondent hotels and the hotel population have the same distribution of rooms. Results indicate that both respondent hotels and hotel population have the same distribution of rooms (t = 0.19, p = 0.85). This result supports the assertion that respondent hotels represent an accurate picture of the Jordan upscale hotel market.

Moreover, Table 6.2 shows that more than one third (34.4%) of the surveyed hotels employed fewer than 25 full-time employees followed by 31.1% in the range of 25-49

people employed. Full-time employee distribution supports the assertion that small-sized hotels are the most common in the surveyed hotels. By applying Kruskal–Wallis one-way analysis of variance (a non-parametric method to analyse the differences for more than two samples for more detail refer to Section 5.6), data analysis reveals that there is a significant difference in the distribution of full-time employees across star-rating (K= 36.8, p < 0.05). On other hand, the distribution of part-time employees was the same across star-rating (K= 3.7, p > 0.05) with nearly 92% of surveyed hotels employing fewer than 75 part-time employees.

A supplementary question was included within the questionnaire to discover and then analyse the availability of selected facilities available within the different hotels. Figure 6.1 shows the availability of five common facilities in the Jordanian upscale hotels. Figure 6.1 clarifies the differences across these facilities. A restaurant is available in a considerable percentage of the Jordanian upscale hotels (53%) followed by Conference (or Banqueting) facilities (39%). While gyms and spa facilities are offered by more than one third of the surveyed hotels, timesharing units however are only available in only 6% of the surveyed hotels.

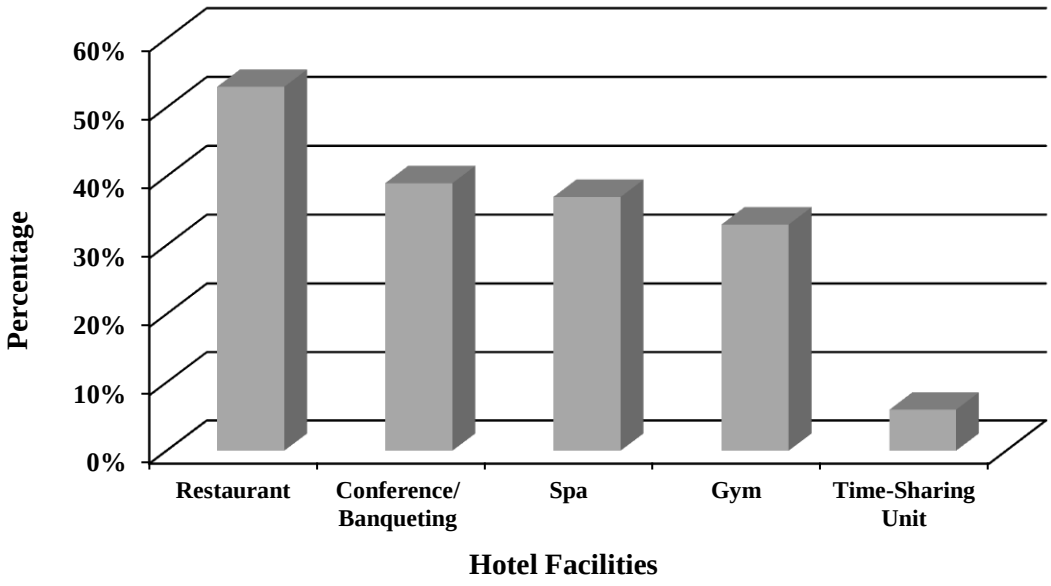


Figure 6.1 The Available Facilities in the Surveyed Hotels

Data analysis indicates that there is no difference in the number of available facilities based on the hotel location, for instance whether the hotel is located in Amman or outside the capital (U= 481, Z= -0.28, p > 0.05). However, it is unsurprising that the number of these facilities significantly differs across Star-Rating (K= 32.4, p < 0.05).

Data analysis shows differences regarding the average number of guests amongst Jordanian upscale hotels. While the annual average number of guests was around 15,000 in three-star hotels, it dramatically increased to almost 54,000 in five-star hotels. However, the average number of guests for the surveyed hotels did not correspond with the average number of guests for the entire hotel market. Every year the Jordan Ministry of Tourism and Antiquities (MOTA) issues a database with information about the total number of guests for the Jordanian classified hotel market each month. By comparing the average guest numbers from primary data against the average guest number from MOTA database using One Sample T-Test (refer to Section 5.6), only Five-Star hotels reported a representative data regarding their guest numbers ($t = 2.2$, $p < 0.05$).

The author divided the surveyed hotels into two categories; the 'Small-Size' hotels and the 'Big-Size' hotels depending on the data concerning the number of rooms and the number of full-time employees (please refer to part 2 in Appendix VI.). Table 6.3 shows the distribution of 'Hotel size' across star rating. This table reveals that 64% of the surveyed hotels were in the small-size category and three-star hotels were the dominant ones in this category. However, all the surveyed five-star hotels and most of four-star hotels were in the big-size category.

Table 6.3 Hotels Size across Star-Rating

		Small-sized	Big-size	Total
Star rating	☆☆☆	37 (97.4%)	1 (2.6%)	38
	☆☆☆☆	2 (15%)	11 (85%)	13
	☆☆☆☆☆	0 (0%)	10 (100%)	10
Total		**39 (64%)**	**22 (36%)**	**61**

6.3.2 Guests' profiles on the surveyed hotels

Further questions were developed to ascertain and then analyse the characteristics of guests staying at participant hotels within Jordanian upscale hotels. Data analysis shows that more than two thirds (70%) of the guests included within this survey were foreign. This percentage approximately represents the same percentage of foreign guests in the MOTA (2013) database which is about 75%. The distribution of the percentage of foreign guests is the same whether the hotel is located in the capital city (Amman) or in one of the three other regions analysed. However, data analysis shows a significant difference in the distribution of foreign guests across star-rating ($K = 7.6$, $p < 0.05$).

Figures 6.2 shows the characteristics of guests for the surveyed hotels where the lift pie chart represents guest types based on the pattern of arrival (Individuals, Couples, Families or Groups) and the right pie chart represents guest types based on the purpose of the visit (Business or Leisure). Regarding the pattern of arrival, Figure 6.2 indicates that 41% of the guests were checking-in as individuals and about a quarter of them (25%) as couples. The distribution of 'Individuals', 'Families' and 'Group' categories is the same whether the hotel is located within Amman or outside it (Mann-Whitney U; p = 0.20, 0.79 and 0.58 respectively). Only the distribution of the 'Couples' category significantly differs between Amman and other locations in Jordan (Mann-Whitney U = 634, Z = 3.23, p < 0.001).

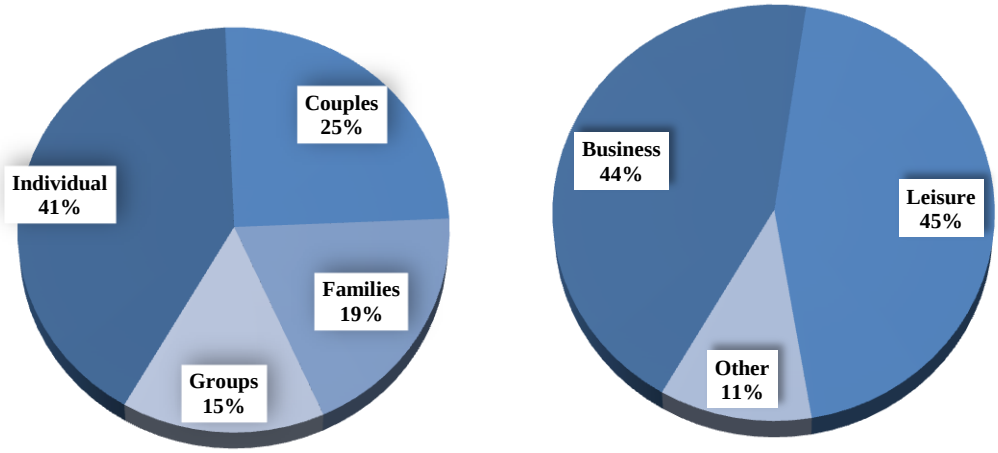


Figure 6.2 Demographics of the Guests for the Surveyed Hotels

However, both the 'Business' and 'Leisure' traveller categories have almost the same percentage of guests in the surveyed hotels (44% and 45% respectively). Data analysis exposes a significant difference in the distribution of hotels guests between Amman and other locations in Jordan for business travellers (U=246, t = -2.8, p < 0.05) and leisure travellers (U = 634, t = 3.2, p < 0.05).

By using Kruskal–Wallis one-way analysis of variance we can see that individuals, families and groups prefer different hotels based on 'Star-Rating' (p < 0.001 for all). 'Business' and 'Leisure' travellers also have a significantly different distribution across Star-Rating (p < 0.05 for both). Only the couples category has the same distribution across Star-Rating (p = 0.34).

6.3.3 Respondents' profiles in the surveyed hotels

Further questions were included to ascertain and then analyse the demographics of respondents (hotel staff) participating in this research. The reason for doing this was to provide reliable information about the respondents and then to link this information to the extent of ICT usage and MP levels for the surveyed hotels. Table 6.4 reviews demographics about respondent's position within the hotel, the respondent's age and length time spent working in the specific hotel.

As outlined in Section 5.4, in the opening of the questionnaire, respondents were asked about their role in the hotel. This question operates as a filter question to identify the correct respondents. Table 6.4 indicates that more than 80% of Jordan hotels respondents were General Managers (GMs) which comprises the roles of Managing Directors and Chief Executive Officers (CEOs). This percentage echoes the percentage of hotels owned by a company in Table 6.2. If we assume that the General Manager is the most likely individual to fill out the survey in a hotel owned by a company then we can see a correlation between ownership type and the respondent role.

Table 6.4 Respondents' Profiles in the Surveyed Hotels

Respondents, Characteristics	Categories	Frequency	Percentage
Respondent's position	Managing Director / CEO	49	80.3%
	Marketing Manager	5	8.2%
	Owner	5	8.2%
	Other	2	3.3%
Respondent's age	25 years old or less	0	0%
	26-35 years old	3	4.9%
	36-45 years old	36	59%
	46-55 years old	22	36.1%
	More than 55 years old	0	0%
Length of serving in current hotel	Less than one year	1	1.6%
	1-5 years	11	18%
	6-10 years	26	42.6%
	11-15 years	22	36.2%
	More than 16 years	1	1.6%

Furthermore, while ‘Marketing Managers’ and ‘Owners’ were 8% for both, only two respondents (3%) were from other categories (a Front-desk Manager and a Sales Manager). These two respondents were included in data analysis because they were serving in large hotels; they completed the questionnaire on behalf of their GMs and because of their excellent experience in their respective hotels (refer to Section 5.6).

The most common age of the respondents was between 36 and 45 years old (59%), followed by the age range between 46 and 55 years old (36%). While 5% of the respondents were 35 years old or less, there were no respondents of the age of 56 years or more. More than 42% of the respondents reported working in their current establishment for 6-10 years while just over one-third (36%) of the respondents reported working in the hotel for between 11-15 years. Moreover, data analysis shows that the distributions of ‘Age’ and ‘Duration of Experience’ were the same across Star-Rating (Kruskal–Wallis; p = 0.08 and 0.09) and it is also the same whether the hotel is located in Amman or not (Mann-Whitney U; p = 0.29 and 0.89 respectively). However, Spearman's rho test (refer to Section 5.6) shows that there is no significant relationship between ‘Respondent’s Age’ and the ‘Duration of Hotel Experience’ for respondents (r = 0.22, p = 0.08).

Furthermore, respondents’ expertise in ICT has been measured by questions built on four-point scale (1= none, 2= some, 3= competent, 4= expert). The participants were asked to answer how they would rank their experience on three areas: General ICT, General Business ICT and Industry-Specific ICT. The average of the scale is 2.5 ((1+2+3+4)/4), thus, a mean above 2.5 shows overall high expertise while a mean below 2.5 illustrates low overall expertise. As Table 6.5 shows, the level of experience on ‘General ICT’ recorded the highest mean average of 2.74 which indicates that respondents have a good experience on General ICT. Furthermore, the table shows that General Business ICT and Industry-Specific ICT have low mean averages of experience (2.28 and 2.16 respectively). As a result, the Overall Experience in ICT for respondents is a little bit lower than the average (2.39).

Table 6.5 Respondents' Expertise on ICT within the Surveyed Hotels

Experience	Mean	Std. Dev
General ICT	2.74	0.85
General Business ICT	2.28	0.84
Industry-Specific ICT	2.16	0.84
Overall Experience in ICT	**2.39**	**0.74**

Furthermore, data analysis shows that the respondents reported the same distribution of overall experience in ICT whether they are located in Amman or outside the capital ($t = 1.08$, $p = 0.29$). However, this is not the same case across Star-Rating ($F = 17.83$, $p < 0.001$). Respondents in five-star hotels have the highest mean average for overall experience in ICT (3.07) followed by those in four-star (2.9) and lastly by those in three-star hotels (2.05). Moreover, Spearman's rho test, demonstrates that there is no significant relationship between overall experience in ICT and Respondent's Age or even between overall experience in ICT and the length of employment in the current hotel.

Finally, regarding the distribution of gender in the surveyed hotels, there was only one female respondent in this study. Additionally, this female respondent was not a GM or an Owner. According to JHA hotels Statistics 2012, all GMs of Jordan upscale hotels are males. MOTA (2013) reported that almost 92% of the hotel workforce is comprised of males, and only 8% is comprised of females (refer to Section 2.5). Based on distribution of gender, this indicated a normal distribution since males are the dominant gender in the hotel workforce in Jordan.

6.4 ICT Uptake

The researcher explored the extent of the usage of ICT systems by Jordanian hotels depending on seven ICT indexes that have been discussed in chapter three. These indexes are: front-office systems; business administration systems; electronic distribution; business intelligence systems; guest service systems; hardware and general networking infrastructure (refer to Section 4.5). Besides these seven indexes, the researcher surveyed the usage of the main social media methods employed by the various hotels. Table 6.6 presents these items and illustrates the transition of these items from the questionnaire.

In this section the researcher deals with each of these indexes distinctly in more detail. The results were used to answer the Research Question 1.1 and 1.2.

Research Question (1.1): "What types of ICT applications do Jordanian upscale hotels use?"

Research Question (1.2): "What is the level of each set of ICT applications used by Jordanian upscale hotels?"

Table 6.6 The Selected ICT Items and their Location in the Questionnaire

ICT Items	Questions
Hotel Front Office Systems (HFOS)	
Property Management System (PMS)	Q 15
EPOS / Restaurant Management System	Q 16, a
Conference / Banqueting Management System	Q 16, b
Leisure Management System (LMS)	Q 16, c
Business Administration Systems	
Accounts Receivable System	22, d
General Ledger Accounting System	22, e
Human Resources System	22, f
eProcurement Software	22, g
Energy Management system	22, h
Work Order Maintenance	22, i
Business Intelligence Systems	
Customer Relationship Management System	22, a
Sales and Marketing Analysis System	22, b
Yield Management System	22, c
Guest Service Systems	
Electronic Door Locking System	18,a
In-Room Electronic Minibar	18,b
In-Room Internet Free Access	18, c
In-Room Internet Paid Access	18, d
In-Room Telephone	18, e
Do-Not Disturb/ Make-Up-Room Electronic Annunciation	18, f
In-Room Printing Facilities	18, g
In-Room Thermostat Switch	19, a
In-Room Internet Sensor Motion Energy switch	19,b
Key Card energy Switch	19, c
Guest-Operated Heating Control Switch	19, d
In-Room Entertainment System	20

ICT Items	Questions
Electronic Distribution Systems	
Booking through Website	Q 17, a
Alternative Distribution Systems (ADS)	Q 17, b
Global distribution system (GDS)	Q 17, c
Hardware	
Desktop EPOS	23, a
Hand-Held EPOS	23, b
Self-Service Kiosks	23, c
Laptops	23, d
Hand-held PCs	23, e
Desktop PCs	23, f
General Network Infrastructure	
Business eMail Account	24, a
Dial-Up Internet Access	24, b
Broadband Internet Access	24, c
Wired Internet Access	24, d
Wireless Internet Access	24, e
Your Company Owned Intranet	24, f
A Website	24, g
Remote Access to your Company Network	24, h
Voice-Over-IP	24, i
Social Media	
Facebook	21 ,a
Twitter	21, b
YouTube	21, c
Flickr	21, d
MySpace	21, e

6.4.1 Front-Office Systems

As Table 6.6 shows, two questions were included within the questionnaire (see questions 15 and 16 in Appendix II) to assess and then analyse the availability and the connectivity of four selected ICT systems that support front-office activities. Figure 6.3 shows these systems. Data analysis indicates variations on the utilisation of these systems amongst Jordanian upscale hotels. Figure 6.3 shows the uptake of front-office systems and whither they are connected to additional software. The figure proposes that 69% of Jordanian hotels have implemented the Electronic-Points-of-Sales systems (EPOS), 52%, of them have implemented Property Management systems (PMS), and 59% of Jordanian hotels have implemented the Conference/ Banqueting Management systems (C/BMS). It is clear from the Figure 6.3 that the Electronic-Points-of-Sales systems (EPOS) are implemented widely and this indicates the level of awareness regarding the uptake and usage of these important systems in the hotels. This also demonstrates that Jordanian hotels are along with the same basic recommended front-office systems amongst upscale hotels.

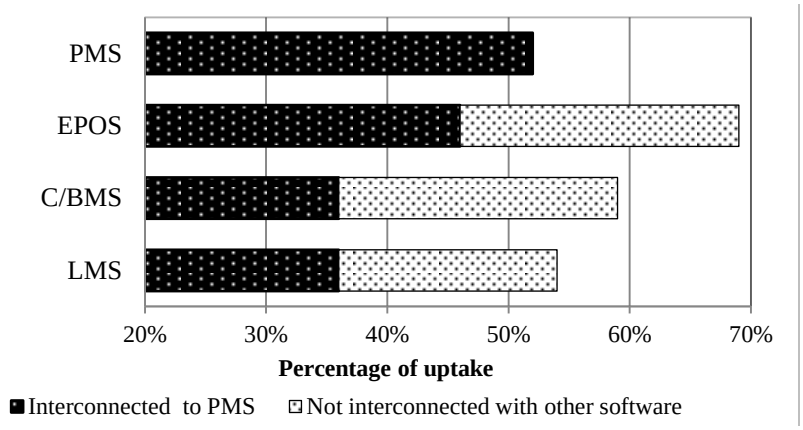


Figure 6.3 Uptake of Front-Office Systems

The Figure 6.3 also shows that only 44% of Jordanian hotels have implemented the Leisure Management systems (LMS) and 36% have implemented the C/BMS. Moreover, the availability of connected versions of these systems is lower; 46% for connected EPOS and 36% for both connected C/BMS and LMS. However, it should be stated here that these latter systems can only be connected to PMS and hence their average to low percentage of uptake. This is very important because it highlights that there is an urgent need to look at this issue within Jordanian hotels to find the reasons behind it, and that is in order to improve, develop and implement the utilisation and the integration of these systems which will support front-office activities amongst Jordanian upscale hotels.

6.4.2 Business Administration Systems

There was one question within the questionnaire (i.e. question 22 in Appendix II) to assess and then analyse the availability and the connectivity of eight selected ICT systems that support back-office activities in hotels. Figure 6.4 shows six systems that classified as general business administration system. Data analysis shows that the adoption of Business Administration Systems varies between hotels. It can be seen form Figure 6.4 that 79% of Jordanian hotels have adopted the General Ledger, and 77% of them have adopted the Accounts Receivable. The Figure 6.4 also shows that 67% of Jordanian hotels have adopted the Human Resources Systems, 46% have adopted an Energy Management System (EMS), and the percentages of adoption for eProcurement and Work is low.

This indicates that there is a problem in the eProcurement and Work within Jordanian hotels in the Business Administration Systems which may affect the performance of the overall ICT applications within the Jordanian upscale hotels use. Again, the percentage of hotels which have adopted a version of these systems connected to PMS is low. Further investigation should be made to illustrate the low percentages of adoption for eProcurement and Work and find suggestions to Jordanian hotels in order to improve the integration of Business Administration Systems as well as the ICT systems within hotel operation.

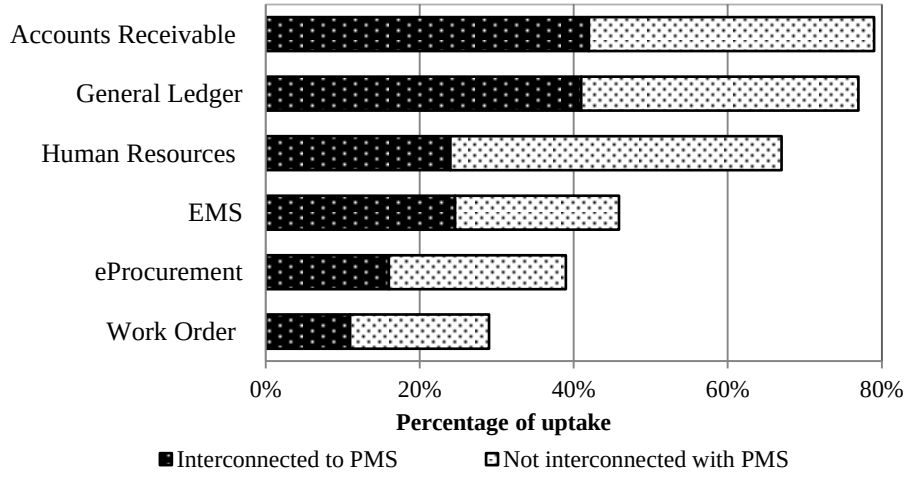


Figure 6.4 Uptake of Business Administration Systems

6.4.3 Business Intelligence Systems

As mentioned above, there was one question within the questionnaire (i.e. question 22 in Appendix II) to assess and then analyse the availability and the connectivity of eight selected ICT systems that support back-office activities in hotels. Three of these systems were

classified as business intelligence systems (Reino 2009) and were presented in Figure 6.5 below. Data analysis indicates that there are variations across the levels of Business Intelligence Systems which have been adopted by hotels as illustrated in Figure 6.5. Sales & Marketing Systems (S&MS) are the most implemented Business Intelligence Systems across the Jordanian upscale hotel market (69%), followed by Yield Management Systems (YMS), which is available at 54% of the businesses. The lowest implemented type of Business Intelligence Systems is Customer Relationship Management Systems (CRM), which have been adopted by 46% of the establishments. Correspondingly, the availability of an interconnected version of these systems follows a similar pattern with 33% for an interconnected S&MS, 28% for an interconnected YMS and (15%) for an interconnected CRM.

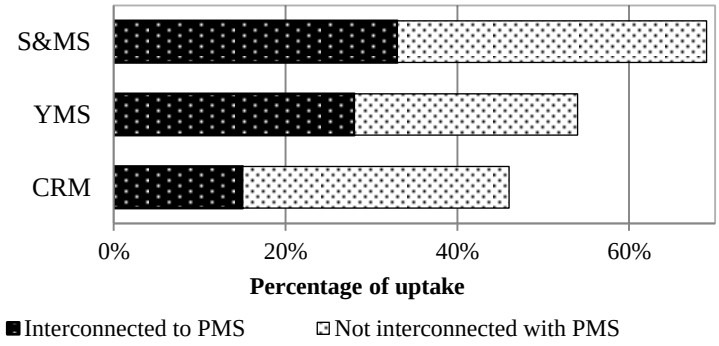


Figure 6.5 Uptake of Business Intelligence Systems

The Sales & Marketing Systems (S&MS) percentage of adoption indicates that the Jordanian hotels are doing well with this specific Business Intelligence System. However, the low percentage (i.e. 15%) for an interconnected CRM indicates that Jordanian hotels are still behind with this Business Intelligence System. This may be because of variety of reasons that are related to the inter-organisational and ICT issues within the Jordanian hotels. These reasons need a careful attention from Jordanian hotels due to the real importance of Business Intelligence Systems.

6.4.4 Electronic Distribution Systems

As Table 6.6 (p.) shows, the availability and the connectivity of three selected electronic distribution systems were assessed through one question in the research questionnaire (i.e. question 17 in Appendix II). Figure 6.6 shows these systems. Data analysis indicates that

there are significant differences across the levels of Electronic Distribution Systems, as shown in Figure 6.6. While a 'Booking-Enabled Hotel Website' is available with less than half of the Jordanian upscale hotels (44.3%), both Global Distribution Systems (GDS) and Alternative Distribution Systems (ADS) are adopted by a large percentage of hotels; (75%) for both GDS and ADS. This is not the case for adopting a connected version of these systems. While more than one third of Jordanian upscale hotels (34%) stated that they use a GDS connected to their PMS and 38% of hotels use a connected ADS, only 30% of Jordanian upscale hotels have a Booking-Enabled Hotel Website connected to their PMS.

The Booking-Enabled Hotel Website is an important Electronic Distribution Systems with any hotels. The figure 6.6 shows that although the Jordanian hotels have implement this Electronic Distribution System, but the current percentages of adoption between Jordanian hotels is low which requires attention from the perspective of Jordanian hotels to reflect the dynamic global changes in the uptake of Electronic Distribution Systems within hotels.

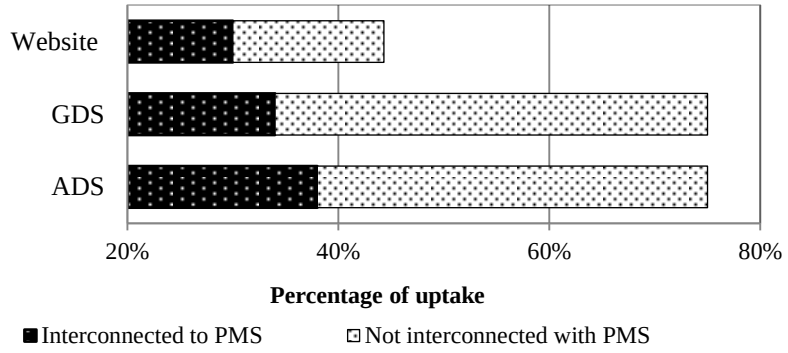


Figure 6.6 Uptake of Electronic Distribution Systems

6.4.5 Guest Service Systems

As Table 6.6 (p.) shows, three questions were included within the questionnaire (see questions 18, 19 and 20 in Appendix II) to assess and then analyse the availability and the connectivity of 12 selected ICT systems that support in-room guest service. Figure 6.7 and Figure 6.8 display these systems. The uptake of Guest Service Systems, presented in Figure 6.7 and Figure 6.8, also suggests wide differences amongst systems. Whilst guest telephones are available at most hotels (74%), only a small percentage of businesses have reported the availability of guest printing facilities inside the rooms (5%). This low percentage can be classified as acceptable according to the Guest Service Systems within upscale hotels. However, the guest telephones percentages within the Jordanian hotels should be improved.

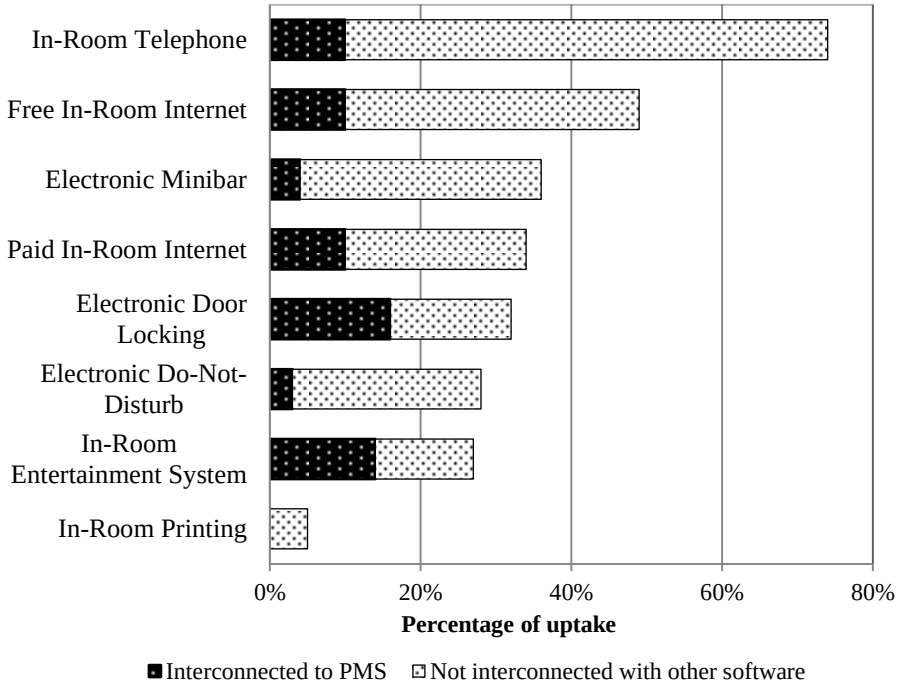


Figure 6.7 Uptake of Guest Service Systems and their Connection to PMS

However, the differences amongst interconnected versions of these systems are not very wide. Figure 6.7 presents the Guest Service Systems that connected to PMS and Figure 6.8 presents those which connected to Energy Management Systems (EMS). In general, most of the connected versions of Guest Service Systems present similar levels of uptake ranging from none to 16%. These low percentages need to be alerted to increase customer satisfaction with Jordanian hotels.

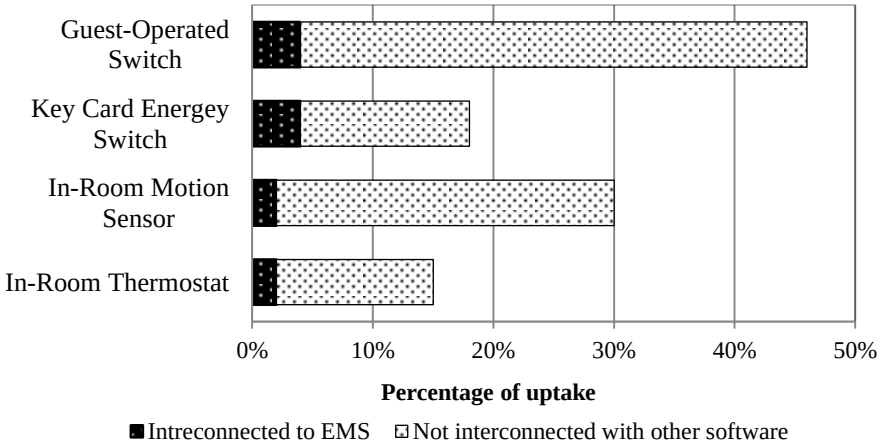


Figure 6.8 Uptake of Guest Service Systems and their Connection to EMS

Further analysis was developed to examine the features of In-Room Entertainment System (I-RES) (see question 20 in the research questionnaire-Appendix II). A considerable percentage of Jordanian upscale hotels have adopted I-RES (28%). Figure 6.9 indicates that among the most common features offered by those hotels adopting I-RES are related to Tourism Information (71%) and Hotel Information (63%). On the other hand, the least common features available within those hotels were "Internet Connection" (33%), and "On-Demand Movies" (4%). No hotels have adopted On-Demand Games, Posting Messages or Check-Out Facilities as a feature of I-RES.

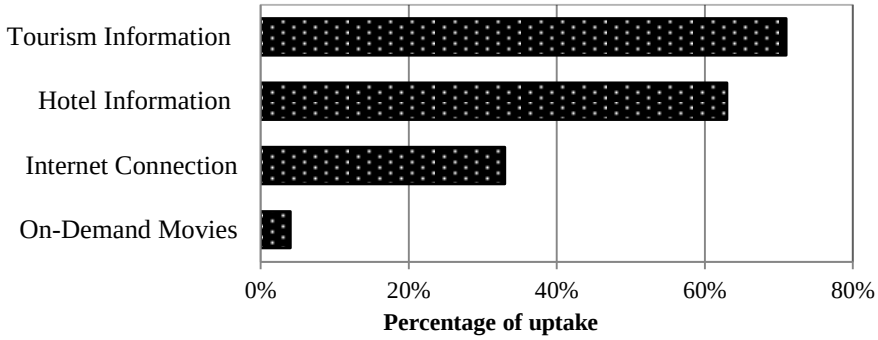


Figure 6.9 Uptake of In-Room Entertainment System Features

6.4.6 Hardware

On the subject of the usage of hardware and as Table 6.6 (p.) shows, the availability and the usage level of six selected hardware were assessed through one question in the research questionnaire (i.e. question 23 in Appendix II). Figure 6.10 shows the availability of these systems. Data analysis suggests notable differences across hardware systems as presented in Figure 6.10. Desktop PCs, Laptops and Hand-held PCs are the most widely available 'Hardware Systems' in Jordanian upscale hotels (100%, 82% and 64% respectively). The availability of all the other 'Hardware Systems' range from 18% for the Desktop Electronic Point of Sales (EPOS) to 10% for Self-Service Kiosks.

Furthermore, the usage of these systems has been measured by questions (i.e. question 23 in Appendix II) built on a five point scale (1= not available, 2= limited usage, 3= average usage, 4= high usage, 5= essential). The participants were asked to answer how they would rank their usage of a given system. The average of the scale is 3 ((1+2+3+4+5)/5), therefore, a mean above 3 shows overall high usage while a mean below 3 shows overall low usage. As Table 6.7 shows, Desktop PCs recorded the highest mean average of 4.08 which shows that Jordanian upscale hotels highly use Desktop PCs to support their operations. Furthermore,

the table shows that Electronic Point of Sales (EPOS) Desktop and Hand-Held have low mean averages of usage (2.41 and 2.34 respectively).

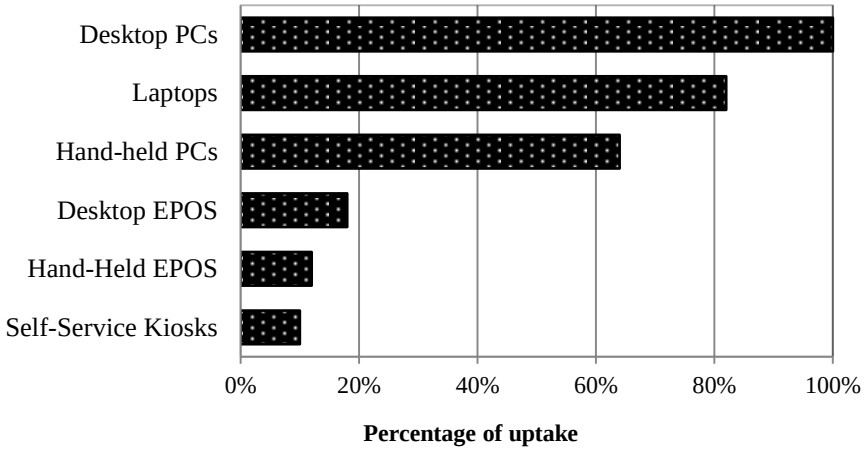


Figure 6.10 Uptake of Hardware Systems

Table 6.7 The Usage of Hardware in the Respondent Hotels

Hardware	Mean	Std. Dev
Desktop PCs	4.08	1.28
Laptops	3.61	1.24
Hand-held PCs	3.18	1.36
Desktop EPOS	2.41	1.42
Self-Service Kiosks	2.39	1.42
Hand-Held EPOS	2.34	1.32

6.4.7 General Networking Infrastructure

Likewise, as Table 6.6 (p.) shows, the availability and the usage level of nine selected 6.4.7 general networking infrastructure were assessed through one question in the research questionnaire (i.e. question 24 in Appendix II). Figure 6.11 shows the availability of these systems. Data analysis identified important differences in the availability of the nine elements of General Networking Infrastructure as presented in Figure 6.11. While 97% of Jordanian upscale hotels utilise Broadband Internet, only 12% of them have adopted Voice-over-IP technology. Table 6.8 shows the results of measuring the usage of General Networking Infrastructure elements.

The usage of these systems has been measured by questions (i.e. question 24 in Appendix II) built on a five point scale (1= not available, 2= limited usage, 3= average usage, 4= high

usage, 5= essential). Table 6.8 reveals that the usage of Broadband Internet Access was ranked the highest with an average mean of 4.03, while a Website had a mean of 3.75. Furthermore, Table 6.8 shows that Jordanian upscale hotels reported that they use Wireless Internet Access (mean of 3.82) more than Wired Internet Access (mean of 3.51).

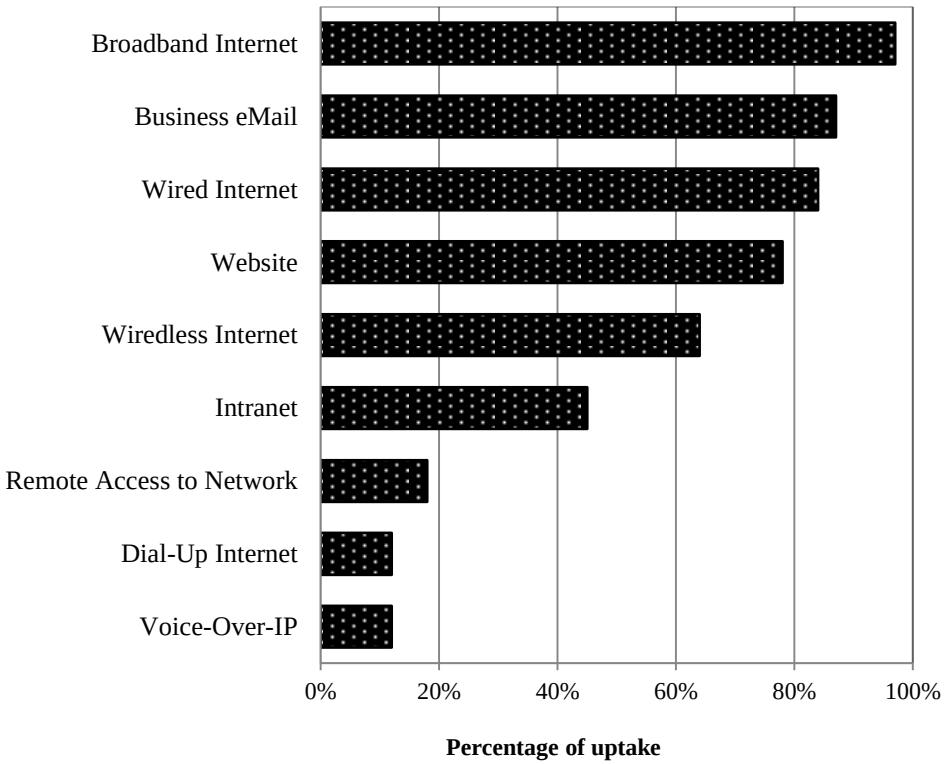


Figure 6.11 Uptake of General Networking Infrastructure

Table 6.8 The Usage of General Networking Infrastructure in the Respondent Hotels

General Networking Infrastructure	Mean	Std. Dev
Broadband Internet Access	4.03	1.26
Wireless Internet Access	3.82	1.35
A Website	3.75	1.41
Business eMail Account	3.66	1.42
Wired Internet Access	3.51	1.22
Company Owned Intranet	2.54	1.51
Remote Access	2.20	1.36
Dial-Up Internet Access	2.07	1.29
Voice-Over-IP	2.03	1.41

6.4.8 Social Media

Additional analysis was conducted to assess the uptake of Social Media. As Table 6.6 (p.) shows, the availability of five selected social media platforms was assessed through one question in the research questionnaire (i.e. question 21 in Appendix II). Figure 6.12 shows three common social media platform that found in Jordanian hotel (i.e. Facebook, Twitter and YouTube). Figure 6.12 indicates that a considerable percentage of Jordanian upscale hotels reported that they have an active 'Facebook' profile (85%). The second most adopted social media was 'Twitter' which is adopted by half of Jordanian upscale hotels. Lastly, only (6.6%) of the sector adopted 'YouTube'.

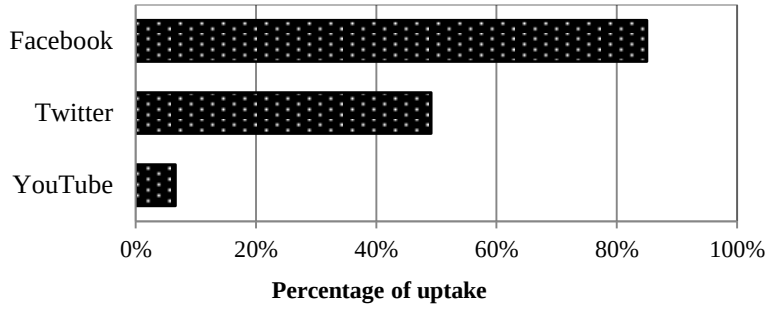


Figure 6.12 Uptake of Social Media within the Surveyed Hotels

As argued by Sigala et al. (2012), social media is challenging existing customer service, marketing and promotional processes throughout the tourism sector. Social media does provide new means for tourism organisations, to reengineer and implement their business and operations through such things as the development of new services, marketing, networking and knowledge management (Sigala et al. 2012). However, Social Media adoption by Jordanian upscale hotels can be classified as acceptable, but there are a wide variety of social media that are neglected by these hotels and which can help marketing them therefore, attwntion to this issuw by Jordanian hotels is required.

6.4.9 Final ICT scores

The data arising from this study suggested that all the Jordanian upscale hotels have adopted at least one type of ICT systems. More specifically, all the Jordanian upscale hotels have at least one type of ICT system to support their operations, including not only Hardware and General Networking Infrastructure, but also Guest Service Systems and Electronic Distribution Systems. Furthermore, a high majority of these hotels report that they have at least one type of software in Front-Office, Business Administration and Business

Intelligence Systems (95%, 98% and 88% respectively). Finally, almost all (88%) of Jordanian upscale hotels have at least one active profile on Social Media.

To sum up, as discussed in Section 4.5 (p.113), this survey assessed the availability, the connectivity and the usage of 48 different items of ICT that are used to support hotel operations in eight categories (refer to Table 4.6, pp.114-116). Table 6.9 presents the availability of these systems.

As Table 6.9 shows, the highest number of ICT systems found within a single hotel totalled 44 different items while the minimum number was 13 items. The overall mean of 30 items (68% of the maximum number of ICT existing in one hotel, and 62% of the total surveyed ICT systems) indicates a greater than average tendency in the surveyed hotels towards the adoption of ICT systems.

Table 6.9 ICT Availability Analysis

	Total Item Analysed	Min.	Max.	Mean	Std. Dev.
Hotel Front-Office Systems (HFOS)	4	0	4	2.6	1.2
Electronic Distribution Systems	3	1	3	2.2	0.7
Business Administration Systems	6	0	5	3.6	1.3
Business Intelligence Systems	3	0	3	2.1	1.0
Guest Service Systems	12	2	12	6.9	2.7
Hardware	6	2	6	4.5	1.5
General Networking Infrastructure	9	3	9	6.5	2.0
Social Media	5	0	3	1.4	0.6
Total ICT system	48	13	44	29.8	9.0

However, Table 6.10 presents the connectivity of 27 of these systems that are used to support hotel operations in five categories. This survey did not assess the interconnectivity of hardware, general networking infrastructure and social media as these systems are by default interconnected to other systems and it will be a time consuming to include them in the questionnaire.

As can be seen in Table 6.10, the highest number of software systems that connected to other software found within a single hotel was 27 items. The overall mean of 8 items (29% of the maximum number of this software existing in one hotel, and 28% of the total surveyed ICT

systems) indicates a weak propensity in the surveyed hotels towards adopting interconnected ICT systems.

Table 6.10 ICT Interconnectivity Analysis

	Total Item Analysed	Min.	Max.	Mean	Std. Dev.
Hotel Front-Office Systems (HFOS)	4	0	4	1.80	1.611
Electronic Distribution Systems	3	0	3	1.25	1.206
Business Administration Systems	6	0	5	1.66	1.622
Business Intelligence Systems	3	0	3	1.16	1.200
Guest Service Systems	12	0	12	2.07	2.845
Total ICT system	28	0	27	7.95	7.489

As discussed in Section 4.6.2.2 (p.119), in order to build a reliable "scoring system" the author divided these items into three different sections depending on their physical nature. The first section comprised the software systems that can be interconnected to additional software systems. A total of 27 items of this type of software were included in the survey (4 items for Front-Office systems; 6 items for Business Administration Systems; 3 items for Business Intelligence Systems, 3 items for Electronic Distribution Systems and 12 items for Guest Service Systems). The score of ICT usage for this kind of item is calculated by awarding 3 points for the uptake of interconnected software or 2 point for non-connected software. The second section is comprised of the hardware and networking infrastructures which, by default, can be interconnected to the other systems. A total of 15 items from this type were included in the survey (6 items for Hardware, 9 items for General Networking Infrastructure). As mentioned above, the usage of these systems has been measured by questions built on a five point scale (1= not available, 2= limited usage, 3= average usage, 4= high usage, 5= essential). Thus, the scores of ICT usage for this kind of item are calculated by adding the selected rate -1. Finally, the third section comprises the 5 types of Social Media and the survey assessed their availability only. The interconnectivity of theses system and their usage were not measured due time constraints and validity issues.

Data analyses shows that the highest score of ICT usage found within a single hotel is 160 and the minimum score is 67 while the average score is (101± 25). In order to give this score meaning and make it a more objective measure, the level of ICT usage within each hotel as a percentage was calculated by dividing the final score of ICT usage by the maximum score (160). In other words, the level of ICT usage is related to the highest final score of ICT usage

found in the surveyed hotels. The reason for presenting data in this figure in such layout was to support the findings in accordance to the first research questions (Q1.2) of this research. However, detailed data about ICT availability and interconnectivity are provided from Figure 6.3 to Figure 6.12 above.

The reliability of the "scoring system" for ICT adoption is developed here by using the internal consistency reliability which is appropriate with the data emerged from the survey questionnaire in this research. As defended in Section (5.8, 149), in this research, the 'Cronbach's Alpha Test' was used to judge the reliability of questionnaire responses by using SPSS version 19.0. It utilised in order to confirm that the "scoring system" developed for this research generated accurate and precise measurements.

Table 6.11 Reliability Results of ICT Scoring System

Variables and groups of factors	No. of Items	Cronbach's Alpha	Strength of association
Overall ICT Availability	**48**	**0.91**	**Excellent**
Overall ICT Interconnectivity	**28**	**0.94**	**Excellent**
Overall ICT Usage	**43***	**0.95**	**Excellent**
Front-office ICT system usage	4	0.74	Good
Electronic distribution usage	3	0.64	Moderate
Business administration systems usage	6	0.75	Good
Business intelligence systems usage	3	0.80	Very good
Guest service systems usage	12	0.82	Very good
Hardware usage	6	0.74	Good
General networking infrastructure usage	9	0.82	Very good

* There is five items measuring social media uptake

Table 6.11 presents the reliability results of the Cronbach's alpha coefficient for ICT scoring system in this research. As shown in Table 6.11, almost all the values for the Cronbach's Alpha coefficients ranged from 0.74 to 0.95, and were considered to be acceptable for this study (Sekaran 2013). The scale which measures the usage of 'Electronic Distribution Channels' is the only scale that had value below 0.70. Nevertheless, its value (i.e. 0.64) is also considered to be acceptable for this study as suggested by Hair et al. (2007). Overall, the results of the reliability coefficient were satisfactory for this study and imply that the findings of this thesis are reliable and the constructs (items) in the scale were consistent and can be referred for further research in this area. Therefore, the items for each scale have been grouped and the results of their scores have been averaged into a single measure to represent that scale.

Table 6.12 presents the average percentage of usage with regards to the seven different categories of ICT systems in hotels (social media usage was excluded due reliability issues). Table 6.12 shows some variations of average usage across ICT systems. The categories of Front-Office software, Electronic Distribution Systems, Business Administration Systems and Business Intelligence Systems, have the highest average of usage (between 71% and 68%) fallowed by General Network Infrastructure (61%). While the level of using Hardware Systems is (60%), the level of using Guest Service Systems comes in the last place (59%). These differences are addressed in more details in the next section.

Moreover, Table 6.12 presents final score of ICT usage for the surveyed hotels. As it can be seen in Table 6.12, the average mean for the level of ICT usage is 63% indicating a greater than average level in the surveyed hotels towards the adoption of ICT systems. However, the overall standard deviation of 16% indicates important differences in this level across hotels. These differences are addressed in more details in Section 6.5 below.

Table 6.12 ICT Usage Analysis

	Total Item Analysed	Min.	Max.	Mean	Std. Dev.
Hotel Front Office Systems (HFOS)	4	33%	100%	70%	23%
Electronic Distribution Systems	3	44%	100%	71%	20%
Business Administration Systems	6	33%	100%	68%	17%
Business Intelligence Systems	3	33%	100%	70%	22%
Guest Service Systems	12	41%	100%	59%	14%
Hardware	6	30%	100%	60%	18%
General Networking Infrastructure	9	31%	100%	61%	17%
Total ICT system	45	42%	100%	63%	16%

Depending on the level of ICT usage, the author divides the surveyed hotels into two groups; the “Lower range of ICT usage” which has lower level of ICT than the average mean (63.3); and the “Higher range ICT usage” which has higher level of ICT than the average mean. Table 6.13 shows the distribution of ICT adoption across star ratings. This table reveals that more than the half of the surveyed hotels were in the lower-range of ICT usage and that Three Star hotels are predominantly in this group. However, all the surveyed five-star hotels and more than two thirds of four-star hotels were in the higher-range of ICT usage.

Table 6.13 Level of ICT Adoption across Star-Rating

		ICT Adoption		
		Lower range of ICT usage	Higher range of ICT usage	**Total**
Star rating	★★★	28 (74%)	10 (26%)	38
	★★★★	4 (31%)	9 (69%)	13
	★★★★★	0 (0%)	10 (100%)	10
Total		**32 (52%)**	**29 (48%)**	**61**

6.5 Hotel Characteristics and the Extent of ICT Usage

The literature review in Chapter Three (Section 3.6, p.69) shows that ICT usage differs according to the demographics of hotels and their guests, as well as, their managers' experience with ICT. Data analysis clearly shows that the final score of ICT adoption varies considerably amongst Jordanian upscale hotel market. Although this final score has a normal distribution, most of the ICT indexes have non-normal distributions therefore non-parametric tests were more appropriate to assess any effect that hotel characteristics had on the score of these indexes. The purpose of this section is to examine the effect of hotel characteristics in terms of type of management and ownership; the size and age of hotel; managerial experience on the extent of ICT usage. The results were used to answer the Research Question (1.3) and to test hypothesis H1.

Research Question 1.3: Are there any differences in the existing ICT applications based on the characteristics of the hotel?

H1: "There is a significant relationship between the characteristics of Jordanian upscale hotels and the extent to which they use ICT".

6.5.1 Star-rating and the extent of ICT usage

By using one way ANOVA test (refer to Section 5.6), data analysis shows that there were significant differences in the level of ICT adoption among Jordanian hotels with different star-rating ($F = 37$, $p < 0.001$). Moreover, by using Tukey HSD and Duncan tests, data analysis shows that each group of hotels with the same Star-Rating is significantly different from others with a different star-rating. As Figure 6.13 shows, these tests reveal that Jordanian hotels with higher star- rating tend to adopt more ICT systems (e.g. the average

mean of ICT level for surveyed hotels is 56% for three-star hotels, 67% for four-star hotels and 86% for five-star hotels).

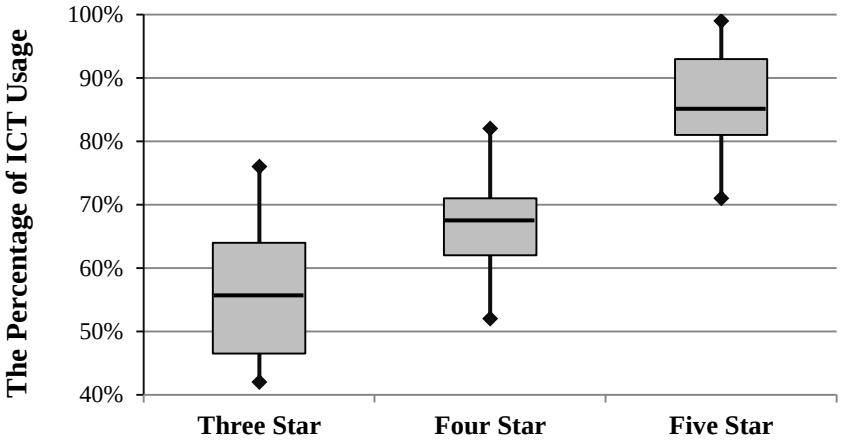


Figure 6.13 The Level of ICT across Star-Rating

Table 6.14 Correlation between ICT Scores and Star-Rating

ICT Systems	Availability	Interconnectivity	Usage Level
Hotel Front-Office Systems (HFOS)	.618**	.723**	.695**
Business Administration Systems	.493**	.619**	.605**
Business Intelligence Systems	.387**	.677**	.607**
Electronic Distribution Systems	.629**	.690**	.695**
Guest Service Systems	.371**	.489**	.447**
Hardware	.478**	__	.552**
General Networking Infrastructure	.525**	__	.597**
Social Media	.256*	__	__
Overall ICT	**.530****	**.729****	**.743****

* $P < .05$, **. $P < .001$

Furthermore, data analysis shows variations of the effect of Star-Rating across ICT systems. Tables 6.14 shows all the relationships between the star-rating of Jordanian upscale hotels and the extent to which they uptake, interconnect and use each ICT index. As Table 6.14 shows, the number of interconnected ICT systems is correlated with Star-Rating ($r = 0.73$; $p < 0.001$). However, the uptake of Social Medias is only slightly correlated with the Star-Rating ($r = 0.26$, $p < 0.05$). As Table 6.14 show, there is a significant relationship between 'Star-Rating' and ICT adoption score ($r = 0.74$; $p < 0.001$). This result rejects the null hypothesis ($H1_0$) and supports the alternative hypothesis ($H1_1$). This table reveals that 'Star-

Rating' is a major factor that affects the availability, connectivity and the usage level of all ICT indexes.

6.5.2 Hotel location and the extent of ICT usage

Regarding hotel location, data analysis shows that there are some differences in the final scores of ICT adoption by Jordanian hotels depending in their location (Independent sample Kruskal-Wallis test; $p < 0.05$). As it can be seen in Figure 6.14, hotels in Dead-Sea region were the highest adopters of ICT systems to support their activities. The hotel market in Amman came second, and the hotel market in Petra came last.

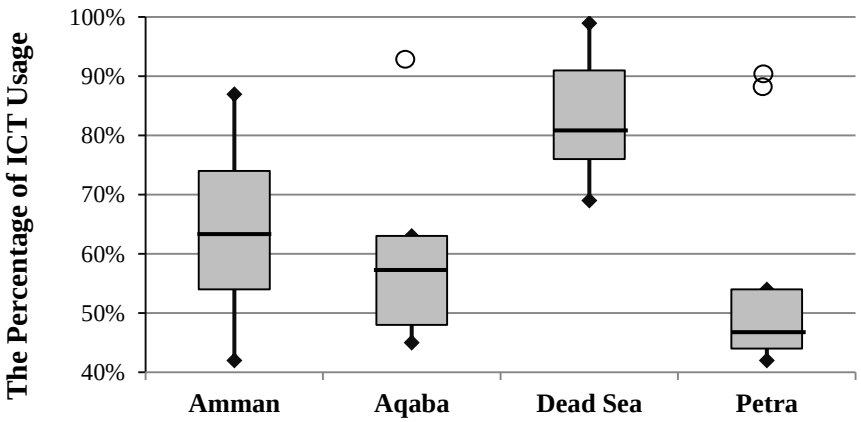


Figure 6.14 The Level of ICT across Hotel Location

In order to overcome the insufficient of the observations, the author re-divided the surveyed hotels into two categories depending on the location. The first category was for the hotels located in the capital city (Amman) while the second one for those outside Amman. The Mann-Whitney U test, data analysis does not show any significant differences on ICT adoption across all ICT indexes between hotels in Amman and hotels in other locations. Correspondingly, the hotels located in Amman have the same distribution of final score of ICT adoption with those located outside Amman (Mann-Whitney U; $p > 0.05$). Moreover, there is no significant relationship between 'Location' and ICT adoption final score. This result supports the null hypothesis ($H1_0$) and rejects the alternative hypothesis ($H1_1$). These results reveal that 'Location' has no affect on the availability, connectivity and level of ICT usage in all indexes.

6.5.3 Hotel management and ownership and the extent of ICT usage

An independent-samples t-test was conducted to compare ICT adoption scores among Jordanian hotels with different ownership type (in sole and company ownerships conditions) and different management type (independent and chain management conditions). Table 6.15 summarises these results.

Table 6.15 Independent Samples t Test for the Level of ICT Usage

Conditions		**Mean**	**Std. Dev**	***t***	***df***	***p***
Ownership	Sole	63	14	-0.15	59	. 88
	Company	63	15			
Management	Independent	60	13	-1.79	59	.08
	Chain	67	15			

As Table 6.15 shows, there was no significant difference in the ICT scores for sole-owned hotels (M = 63 ± 14) and company-owned ones (M = 63 ± 15); t (59) = 0.15, p = 0.88. Moreover, there was also no significant difference in the ICT scores for independent managed hotels (M = 60 ± 13) and those managed as a part of chain (M = 67 ± 15); t (59) = 1.8, p = 0.08. These results support the null hypothesis ($H1_0$) and reject the alternative hypothesis ($H1_1$). These results reveal that 'Hotel types of Owner or Management' have no impact on the level of ICT usage.

6.5.4 Size of hotel and the extent of ICT usage

All characteristics related to the hotel size have an effect on ICT adoption. As it shown in Table 6.16, number of rooms, number of full-time employees, number of guests and the available facilities in a hotel are the characteristics which determine the hotel size and ultimately affect almost all ICT indexes uptake except the adoption of social media.

As seen in Table 6.16, Front-Office and Electronic Distribution systems are the most correlated with all hotel size indicators (r > 0.58 and p < 0.001 for all). What is more, the overall level of ICT usage has significant positive correlation with all hotel size indicators (r > 0.50 and p < 0.001 for all) which indicate a - moderate- positive relationship between hotel size and ICT usage within the surveyed hotels.

Table 6.16 Correlation between ICT Scores and Hotel Size

The level of ICT Usage	Number of rooms	Full-time employees	Number of guests	Number of guests
Hotel Front-Office Systems (HFOS)	.626**	.722**	.720**	.656**
Business Administration Systems	.478**	.619**	.603**	.589**
Business Intelligence Systems	.509**	.589**	.655**	.630**
Electronic Distribution Systems	.607**	.581**	.642**	.749**
Guest Service Systems	.305*	.428**	.483**	.357**
Hardware	.260*	.417**	.504**	.387**
General Networking Infrastructure	.403**	.566**	.663**	.510**
Social Media	.221	.230	.243	.367**
Overall ICT	**.507*** **	**.652*** **	**.694*** **	**.543****

* . $P < .05$ **. $P < .001$

As mention in Section 6.3.1, the author divided the surveyed hotels into two categories depending on the number of rooms, the number of full-time employees, the number of guests and the number of the available facilities (the number of part-time employees was excluded). These two categories were the 'Small-Size' hotels and the 'Big-Size' hotels. As it shown in Figure 6.15, by using Mann-Whitney U test it is possible to illustrate that there is a significant difference in the level of ICT usage between big-sized hotels ($M = 75 \pm 13$) and small-sized hotels ($M = 56.6 \pm 10$), $p < 0.001$.

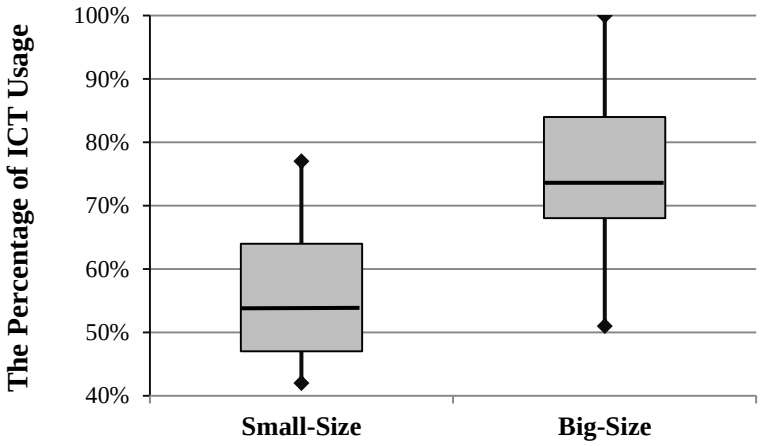


Figure 6.15 The Level of ICT across Hotel Size

Data analysis also suggests that there is a significant difference between small-size and big-size hotels in the availability, connectivity and the usage level of all ICT indexes (Mann-Whitney U test, $p < 0.05$ for all) except social media (Mann-Whitney U test, $p > 0.05$).

Specifically, the results suggest that hotels with higher number of rooms, higher number of full-time employees, more facilities or higher number of guests achieved higher level of ICT usage (r = 0.50, 0.65, 0.69 and 0.60 respectively; $p < 0.001$). These results reject the null hypothesis ($H1_0$) and support the alternative hypothesis ($H1_1$). These results reveal that 'Hotel Size' is a major characteristic that affect the availability, connectivity and the usage level of all ICT indexes.

6.5.5 The effect of hotel age on the extent of ICT usage

Regarding hotel age, data analysis shows that there are significant correlation between the level of ICT usage in Jordanian upscale hotels and their age ($r = 0.35$, $p < 0.01$). As seen in Table 6.17, while there is no significant correlation between hotel age and the number of ICT systems available, data analysis shows a significant positive correlation between hotel age and the number of interconnected ICT Systems. The results suggest that older hotels adopted more interconnected ICT systems and achieved higher level of ICT usage than the newer hotels. This result rejects the null hypothesis ($H1_0$) and supports the alternative hypothesis ($H1_1$). This result reveals that 'Hotel Age' is one of hotel characteristics that affect both the connectivity and the usage level of ICT.

Table 6.17 Correlation between ICT Scores and Hotel Age

	Correlations
Number of ICT systems available	.244
Number of interconnected ICT Systems	.382*
The Level of ICT Usage	.350*

* . $P < .05$

6.5.6 The effect of hotel guests on the extent of ICT usage

Despite the significant positive relationship between guests number and ICT final score ($r = 0.69$; $p < 0.001$), the author was seeking to investigate whither the features of these guests have an effect on ICT adoption. As can be seen in Table 6.18, data analysis shows that the annual percentages of the foreign guests, the business guests and the leisure guests have no significant correlation with the availability, interconnectivity or the level of ICT usage. Moreover, the annual percentages of guests that are checking-in as individuals, as couple or as families have also no significant correlation with the availability, interconnectivity or the level of ICT usage.

Table 6.18 Correlation between ICT Scores and the Type of Hotel Guests

Correlations	Availability	Interconnectivity	Usage level
Foreign guests (%)	-.185	-.207	-.227
Individual guests (%)	-.117	-.237	-.160
Guests as couples (%)	.124	.054	.057
Guests as families (%)	.009	.111	.393
Guests as groups (%)	.160	.332*	.286*
Business guests (%)	-.004	-.233	-.142
Leisure guests (%)	-.155	.030	-.088

* . $P < .05$

However, only the annual percentage of guests who arrive as groups has significant correlation with both the total number of interconnected ICT system and the level of ICT usage (r = 0.33 and 0.29 respectively; $p < 0.05$). This result can be due the significant positive correlation between the annual percentage of group guests and the overall number of guests (r = .37, $p < .05$). Despite the annual percentage of guests arriving as group, data analysis reveals that 'Guest Type' has no affect on the availability, connectivity and level of ICT usage and this result supports the null hypothesis ($H1_0$) and rejects the alternative hypothesis ($H1_1$).

6.5.7 The experience of respondents and the extent of ICT usage

Regarding to the effect of demographics of the participating respondents on ICT score, Table 6.19 indicates that 'Age' and 'Duration on the job' have no effect on ICT scores. However, there is a significant correlation between role of participating respondents and the adoption of ICT. Moreover, Figure 6.16 indicates that there was a significant difference between the level of ICT usage reported by direct managers (M= 61 ± 13) and other respondents (M= 75± 15); t (59) = -3.3 $p < 0.05$. These results suggest role of participating respondents in hotels does have an effect on ICT scores.

Table 6.19 Correlations between ICT Scores and the Demographics of Respondents

Correlations	Availability	Interconnectivity	Usage level
Respondents age	**-.106**	**-.111**	**-.077**
Respondents position	**.325***	**.310***	**.363****
Duration on job	**.074**	**.049**	**.045**
Overall Experience in ICT	**.537****	**.671****	**.677****
General ICT	.540**	.600**	.612**
General Business ICT	.478**	.655**	.605**
Industry-Specific ICT	.358*	.507**	.549**

* . $P < .05$ **. $P < .001$

Regarding the relationship between the respondents' experience in ICT and the final ICT scores, Table 6.19 indicates that there is a significant positive relationship between the overall experience of the participants in ICT and the level of ICT usage ($r = 0.68$; $p < 0.001$). Moreover, Figure 6.17 indicates that there is a significant difference in the level of ICT usage between respondents with low experience in ICT ($M = 56 \pm 11$) and respondents with high experience in ICT ($M = 73 \pm 13$); t (59) = -5.6, $p < 0.001$. These results suggest that respondents with a high average level of experience in ICT reported more ICT systems adopted in their hotels. This result rejects the null hypothesis ($H1_0$) and supports the alternative hypothesis ($H1_1$) that 'Overall Experience in ICT' is a major characteristic that affects the availability, connectivity and the usage level of ICT.

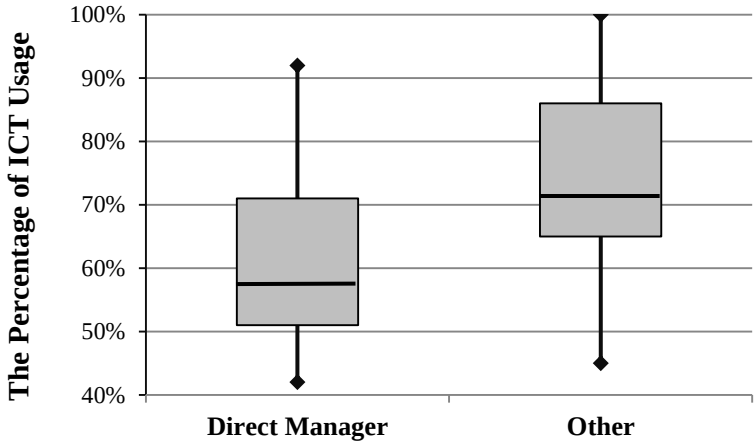


Figure 6.16 The Level of ICT against Respondent Role in the Business

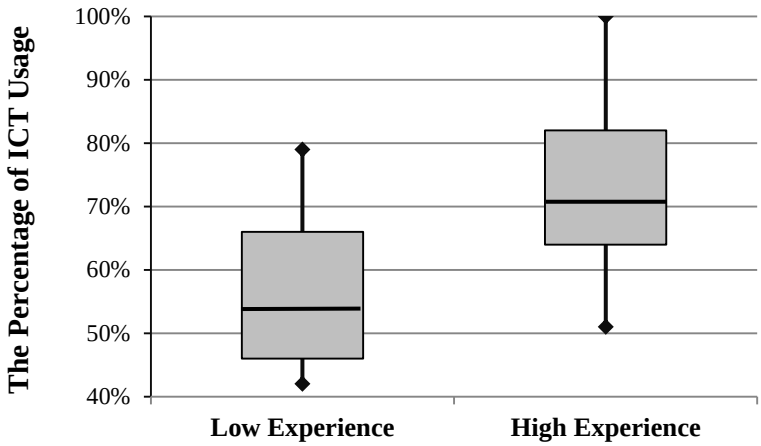


Figure 6.17 The Level of ICT against the Respondent Experience in ICT

The results from the previous section suggested that hotel characteristics have some influence on the availability, interconnectivity and the level of ICT usage. Therefore, further statistical analysis was conducted in order to verify the relationship between the level of ICT usage and hotel characteristics. This analysis was achieved by adopting a linear regression method (e.g. Ham et al. 2005; Reino 2009). All the hotel characteristics, which presented an impact on the level of ICT usage according to the correlation results and fulfilled the requirements for linear regressions, were included as predictors for the level of ICT usage. These characteristics were; the star-rating, hotel age, number of full-time employees, number of rooms, number of guests, number of facilities, the percentage of guest who arrive in groups, the role of respondents in the hotel and the experience of respondent with ICT.

Table 6.20 reports the results of the regression analysis. The suggested model was statistically significant (F (5) = 24.039, $p < .0001$) and the overall model fit (*R Square value*) was 0.686 and the "*adjusted R Square value*" was 0.658 which indicates that the model explains about 66%-69% of the variability of the response data around its mean which suggests that the model is suitable for prediction. As Table 6.20 indicates, the results obtained through linear regression supports the prediction that the level of ICT usage for the surveyed hotels is directly related to characterises of the individual establishments outlined above.

Table 6.20 Results of Regression Analysis between ICT Level and Hotels' Characteristics

Model 1	Coefficient	Std. error	*t*	*p*	95%confidence Interval		Importance
					lower	*Upper*	
(Intercept)	61.963**	7.87	7.87	.000	46.18	77.74	___
Three-Star Hotels	-17.360*	5.47	-3.17	.002	-28.32	-6.40	36%
Four-Star Hotels	-12.172*	4.22	-2.88	.006	-20.63	-3.71	
Experience on ICT	2.263*	0.64	3.53	.001	0.98	3.55	39%
Full-Time Employees	3.181*	1.38	2.31	.025	0.42	5.95	17%
Number of Bedrooms	-2.161	1.35	-1.60	.116	-4.87	0.55	8%

*. $P < 0.05$ **. $P < 0.001$

As can be seen from Table 6.20, the strongest contribution on the level of ICT usage was made by star-rating, which presented an odds of 62 (β = 61.96, $p < 0.001$) for five-star hotels, 50 (β = 61.96-12.17, $p < 0.01$) for four-star hotels and 45 (β = 61.96-17.36, $p < 0.05$) for three-star hotels. Moreover, the regression model indicates that when ICT level was predicted it was found that number of full-time employees (β = 3.18, $p < 0.05$) was a significant predictor. The estimated rate of change of the conditional mean of 'ICT level' with respect to the number of full-time employees, when all other factors are fixed, is between 0.4 and 6 units.

These results specify that the influence of hotel size which determined here by data regarding the number of full-time employees, and number of bedrooms as well as the star-rating has a positive impact on the level of ICT usage which supports H1. However, the suggested model, including the effect of the number of bedrooms on its prediction was not statistically significant (β = -2.2, $p > 0.05$). Furthermore, data regarding the number of guests, the number of available facilities, and the percentage of guests who arrive in groups were not significant predictors. These factors failed to fulfil the assumptions for this regression model due to the high correlation between each of these characteristics and the numbers of full-time employees as well as the star rating which both indicate the 'Size' of the hotels (refer to Section 6.3.1).

The model also indicates that the respondent experience on ICT was a significant predictor for the level of ICT usage (β = 2.26, $p < 0.05$) which also supports H1. However, there is no statistically significant linear dependence of the mean of 'ICT level' of a hotel based on the 'Role in Job' and 'Hotel Age' variables. This means that both the 'Role in Job' and 'Hotel

Age' variables are not significant predictors for the level of ICT usage. Depending on this model the researcher developed predictive models for ICT system uptake (See Appendix VI, Part 6)

6.6 Marketing Performance Levels

The researcher explored the marketing performance of Jordanian hotels depending on the 12 metrics that have been discussed in chapter three. These metrics cover the financial; market, customer, and invention measures (refer to Section 4.3). In this section the researcher deals with each of these metrics distinctly in more detail. The results were used to answer the second research question and its sub-question number 2.1.

Research Question (2.1): "What is the amount of marketing performance of Jordanian hotels in each metric?"

Respondents' satisfaction with the marketing performance of their hotels has been measured by questions built on Likert five-point scale (1= Completely dissatisfied, 2= Somewhat dissatisfied, 3= Neither satisfied or dissatisfied, 4= Somewhat satisfied, 5= Completely satisfied). The participants were asked to answer how they would rank their satisfaction on 12 items that measure marketing performance comparatively with their major competitors. The average of the scale is 3 ((1+2+3+4+5)/5), thus, a mean above 3 shows overall high performance while a mean below 3 show overall low performance.

6.6.1 Financial measures of Jordanian upscale hotels

The level of satisfaction with financial measures of the surveyed hotels is presented in Table 6.21 which shows that the level of satisfaction with 'Profit' recorded the highest mean average (4.3 ± 0.8) followed by the level of satisfaction with 'Turnover' with mean average of (4.2 ± 0.9).

Table 6.21 Financial Measures of Jordanian Upscale Hotels

Financial Measures	Mean	Std. Dev
Profit	4.28	0.82
Turnover	4.20	0.89
Total	**4.24**	**0.80**

Since data analysis indicates a significant correlation between profits and turnover ($r = 0.77$, $p < 0.001$), the total score for financial measures can be obtained by averaging the scores of both of these metrics. Table 6.21 reveals that the average level of satisfaction with financial measures is (4.24 ± 0.8), which indicates that respondents were highly satisfied with the financial aspect of their hotels performance.

6.6.2 Market measures of Jordanian upscale hotels

The 'Market' measures of marketing performance also got high ranks of satisfaction as shown in Table 6.22. Both 'Market share' and 'Occupancy rate' had the same mean average of (4.1) with more than 0.8 in standard deviation. However, because of the correlation between market share and occupancy rate ($r = 0.72$, $p < 0.001$), the total score for market measures was calculated by averaging the scores of both 'Market share' and 'Occupancy rate'. Table 6.22 reveals that the average level of satisfaction with market measures is around (4.1 ± 0.8). This result indicates that respondents were highly satisfied with the market measures in their hotels performance.

Table 6.22 Market Measures of Jordanian Upscale Hotels

Market Measures	Mean	Std. Dev
Market share	4.08	0.86
Occupancy rate	4.08	0.80
Total	**4.08**	**0.78**

6.6.3 Customer measures of Jordanian upscale hotels

The researcher explored the 'Customer' measures of marketing performance depending on six metrics that have been presented in Table (4.4, p.102). These marketing metrics are presented in Table 6.23 which indicates minor differences in the satisfaction rate across these metrics. The table shows that the level of satisfaction with the 'perceived service quality' recorded the highest mean average of (4.07 ± 0.9) followed by the level of satisfaction with the 'customer awareness of hotel brand' with mean average of (4.03 ± 0.8). Both 'New customer gained' and 'Customer loyalty' had the same mean average of (4.02) with more than 0.8 in standard deviation. The 'customer satisfaction' and the 'customer purchase intention' measures of marketing performance came in the last place with mean averages of (4.0 ± 0.9) and (3.9 ± 1.0) respectively.

Furthermore, Table 6.24 shows the correlation amongst these metrics which indicate strong correlations among them ranging between (r =0.77 to r =0.53; p < 0.001 for all). The interrelationships among these metrics allow us to average the scores of these metrics in order to calculate the total score for customer marketing measures. As can be seen in Table 6.23, the average level of satisfaction with customer measures is around (4.0 ± 0.8). This result indicates that respondents were somewhat satisfied with their 'customer' measures of marketing performance measures for their hotels performance.

Table 6.23 Customer Measures of Jordanian Upscale Hotels

Customer Measures	Mean	Std. Dev
Perceived service quality	4.07	0.93
New customer gained	4.02	1.01
Customer loyalty	4.02	0.83
Customer satisfaction	3.98	0.90
Customer awareness of business brand	4.03	0.82
Customer purchase intention	3.90	1.01
Total	**4.00**	**0.78**

Table 6.24 Correlation amongst Marketing Metrics Indicating the Customer Measures

Correlation	1	2	3	4	5
1- Perceived service quality	1.00				
2- New customer gained	.716**	1.00			
3- Customer loyalty	.627**	.677**	1.00		
4- Customer satisfaction	.665**	.722**	.732**	1.00	
5- Customer awareness	.641**	.700**	.525**	.679**	1.00
6- Purchase intention	.640**	.710**	.609**	.746**	.771**

**. P < 0.001

6.6.4 Invention measures of Jordanian upscale hotels

Regarding the level of satisfaction with invention measures of the surveyed hotels, Table 6.25 shows that the levels of satisfaction with both the 'new products or services launched by the hotel' and the 'revenue from these products and services' recorded high mean averages

(3.7 and 3.8 respectively). Moreover, the correlation between these items is significantly high (r = 0.73, p < 0.001). Thus, the total score for invention measures were calculated by averaging the scores of these metrics. As shown in Table 6.25, the average level of satisfaction with invention measures is around (3.7 ± 1.0). This result indicates that respondents were highly satisfied with the invention measures in their hotels performance.

Table 6.25 Invention Measures of Jordanian Upscale Hotels

Invention Measures	Mean	Std. Dev
New products / services launched	3.70	1.04
Revenue from new products / services as a percentage of total sales	3.75	1.14
Total	**3.73**	**1.04**

6.6.5 Overall marketing performance for Jordanian upscale hotels

The reliability of the "scoring system" for marketing performance measurements is developed depending on the internal consistency reliability which is appropriate with the data emerged from the survey questionnaire in this research. As defended in Section (5.8, 149), in this research, the 'Cronbach's Alpha Test' was used to judge the reliability of questionnaire responses by using SPSS version 19.0. It utilised in order to confirm that the "scoring system" developed for this research generated accurate and precise measurements.

Table 6.26 presents the reliability results of the Cronbach's alpha coefficient for marketing performance scoring system in this research. As shown in Table 6.26, all the values for the Cronbach's Alpha coefficients ranged from 0.85 to 0.92, and were considered to be acceptable for this study (Sekaran 2013). Overall, the results of the reliability coefficient were satisfactory for this study and imply that the findings of this thesis are reliable and the constructs (items) in the scale were consistent and can be referred for further research in this area. Therefore, the items for each scale have been grouped and the results of their scores have been averaged into a single measure to represent that scale.

The data arising from this study suggested that the Jordanian upscale hotels were to some extent satisfied with their marketing performance with mean average 4.01 for the overall marketing performance, as shown in Table 6.27. The table shows that the level of satisfaction with the 'financial measures' recorded the highest mean average of (4.24 ± 0.8). While the 'customer measures' came in the third place with mean average of (4.0 ± 0.8), the 'invention measures' came in the last place with mean average of (3.73 ± 1.0). Moreover, the

table indicates there is no hotel was completely dissatisfied with financial measures, market measures or customer measures. However, there are some hotels were completely dissatisfied with invention measures.

Table 6.26 Reliability Results of Marketing Performance Scoring System

Variables and groups of factors	No. of Items	Cronbach's Alpha	Strength of association
Marketing performance measures	**12**	**0.91**	**Excellent**
Financial measures	2	0.87	Very good
Competitive market measures	2	0.85	Very good
Costumer measures	6	0.92	Excellent
Innovation measures	2	0.90	Excellent

* There is five items measuring social media uptake

However, as can be seen in Table 6.26, the standard deviation for the final score of marketing performance was 0.65 which indicates important differences in the level of marketing performance across hotels. These differences are addressed in more details in Section 6.7 below.

Table 6.27 Marketing Performance Scores of Jordanian Upscale Hotels

Marketing Performance Scores	Min.	Max.	Mean	Std. Dev
Financial measures	2.00	5.00	4.24	0.80
Market measures	2.00	5.00	4.08	0.78
Customer measures	2.00	5.00	4.00	0.78
Invention measures	1.00	5.00	3.73	1.04
Overall marketing performance	**1.17**	**5.00**	**4.01**	**0.65**

Moreover, Table 6.28 indicates significant correlations amongst the market measures, customer measures and invention measures ranging between (r = 0.44 to r = 0.71; $p < 0.05$ for all). However, the final score of financial measures does not correlated with other measures. Therefore, in the next sections, the author examines the measures of marketing performance (the financial and nonfinancial) separately, as well as by the final score of marketing performance.

Table 6.28 Correlation among Marketing Performance Measures

Correlation	1	2	3
1- Financial measures	1.000		
2- Market measures	.195	1.000	
3- Customer measures	.096	.713**	1.000
4- Invention measures	.164	.441*	.533**

*. $P < 0.05$ **. $P < 0.001$

6.7 Hotel Characteristics and the Extent of Marketing Performance

Further analysis identified that marketing performance varies considerably amongst Jordanian upscale hotels. The purpose of this section is to examine the effect of hotel characteristics in terms of star-rating, location, type of management and ownership; the size and age of hotel; managerial experience on the marketing performance. The results were used to answer the research question (2.2) and to test hypothesis H2.

Research Question (2.2): "Do hotels differ in the actual marketing performance depending on their characteristics?"

H2: "There is a significant relationship between the characteristics of Jordanian upscale hotels and the MP scores".

6.7.1 Star-rating and marketing performance

By using one-way ANOVA test, data analysis shows that there were significant differences in marketing performance scores amongst Jordanian hotels with different star-rating (F = 30.77, $p < 0.001$). Specifically, the results from Tukey HSD and Duncan tests (refer to Section 5.6) show that marketing performance scores for Jordanian three-star hotels (M= 3.66 ± 0.09) were significant differences from both four-star (M= 4.46 ± 0.1) and five-star (M= 4.77 ± 0.08) hotels; Tukey HSD (p = 0.17) and Duncan (p = 0.07). However, there was no significant difference between the MP scores between four and five-star hotels; Tukey HSD and Duncan ($p < 0.05$ for both). Figure 6.18 shows the differences in the final score of marketing performance among Jordanian hotels with different star-rating.

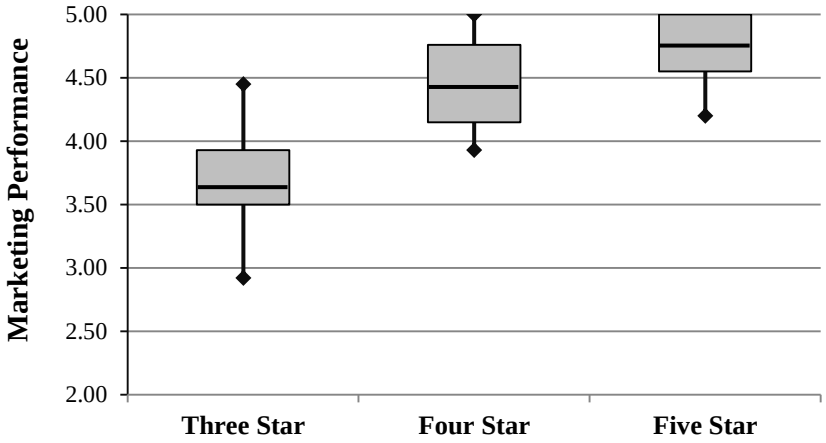


Figure 6.18 The Level of Marketing Performance across Star-Rating

Furthermore, data analysis shows variations of the effect of star-rating across the different measurement of marketing performance. Tables 6.29 shows all relationships between the star-rating of Jordanian upscale hotels and the extent to which they evaluate their marketing performance in each measure.

Table 6.29 Marketing Performance Scores and Star-Rating

Marketing Performance Scores	Correlation	Kruskal-Wallis test
Financial Measures	.423*	Reject the null hypothesis*
Market Measures	.556**	Reject the null hypothesis**
Customer Measures	.663**	Reject the null hypothesis**
Invention Measures	.618**	Reject the null hypothesis**
Overall marketing performance	**.761****	One-way ANOVA test ($F = 30.77$, $p < 0.01$)

*. $P < 0.05$ **. $P < 0.001$

As Table 6.29 shows, the 'Customer Measures' (e.g. Customer loyalty and customer satisfaction) is highly correlated with 'Star-Rating' ($r = 0.66$; $p < 0.001$). However, the 'Financial Measures' (e.g. Turnover and Profits) is only slightly correlated with 'Star-Rating' ($r = 0.26$, $p < 0.05$). By using independent sample Kruskal-Wallis test, as shown in Table 6.29, data analysis shows that there were significant differences in marketing performance scores in all measures among Jordanian hotels with different star-ratings ($p < 0.01$ for all). This result rejects the null hypothesis ($H2_0$) and supports the alternative hypothesis ($H2_1$). This table reveals that 'Star-Rating' is a major characteristic that affects the marketing performance of Jordanian upscale hotel in all measures used in the survey.

6.7.2 Marketing performance scores for hotels with different locations

An independent-samples t-test was conducted to compare marketing performance scores within the ownership type (in sole and company ownerships conditions), management type (in independence and chain management conditions) and hotel location (whether the hotel is located in the capital city 'Amman' or not). Table 6.30 summarises these results.

Table 6.30 Independent Samples t Test for Marketing Performance Score

Conditions		Mean	Std. Dev	*t*	*df*	*p*
Ownership	Sole	4.01	.64	-.015	59	.988
	Company	4.01	.66			
Management	Independent	3.89	.63	-.345	59	.732
	Chain	4.04	.68			
Location	Amman	4.04	.60	.494	59	.623
	Other regions	3.95	.74			

As Table 6.30 shows, there was no significant difference in the MP scores for sole-owned hotels (M= 4.01± 0.64) and company-owned ones (M= 4.01 ± 0.66); t (59) = 0.02, p = 0.99. Moreover, there was also no significant difference in the MP scores for independent managed hotels (M= 3.89± 0.63) and those managed as a part of chain (M= 4.04 ± 0.68); t (59) = 0.35, p = 0.73. This is the same case for the location condition, as there was no significant difference in the marketing performance scores for hotels that located in Amman (M= 4.04 ± 0.6) and those located in other regions (M= 3.95 ± 0.74); t (59) = 0.49, p = 0.62.

Furthermore, data analysis shows no differences in all measures of marketing performance depending on the ownership and management type of hotels. Table 6.31 presents the result of the independent sample Mann-Whitney U test for all measures of marketing performance depending on the ownership and management type of hotels, as well as their location. The result shows that there were significant differences in the 'Financial Measures' scores amongst Jordanian hotels with different locations (p < 0.01). This result suggests that the hotels located in Amman were less satisfied with their financial outcomes (M= 3.96 ± 0.8) than those located in other regions (M= 4.73 ± 0.6). However, all other results do not indicate any significant differences in all Marketing Performance Scores amongst Jordanian hotels with different locations, ownership structures or management arrangements. These results support the null hypothesis ($H2_0$) which assumes that ownership type, management arrangement and location do not have an effect on marketing performance of Jordanian upscale hotel in all measures used in the survey.

Table 6.31 Independent Samples Mann-Whitney U Test for Marketing Performance Scores

Marketing performance measurement	Ownership	Management	Location
Financial Measures	.521	.819	.000*
Market Measures	.896	.965	.969
Customer Measures	.862	.861	.179
Invention Measures	.993	.187	.678

* Reject the null hypothesis

6.7.3 Size of hotel and marketing performance

All characteristics related to the hotel size have an effect on marketing performance. As it shown in Table 6.32, number of rooms, number of full-time employees, number of guests and the available facilities in a hotel are among the characteristics of hotel that affect almost all the measures of marketing performance for the surveyed hotels. As it can be seen in Table 6.32, customer measures for marketing performance are the most correlated with all hotel size indicators ($r > .45$ and $p < .001$ for all).

However, financial measures for marketing performance are only correlated with number of rooms and number of full-time employees ($r = .46$ and .44 respectively; $p < .001$ for both). There is no significant correlation between financial measures for marketing performance and both the number of guests and number of facilities available in the surveyed hotels. While invention measures for marketing performance are mostly correlated with the number of employees ($r = .55$; $p < .001$), customer measures for marketing performance are mostly correlated with the number of facilities available in a hotel ($r = .65$; $p < .001$).

Table 6.32 Correlation between Marketing Performance Scores and Hotel Size

	Number of rooms	Full-time employees	Number of guests	Number of facilities
Financial Measures	.460**	.436*	.183	.217
Market Measures	.512**	.421*	.335*	.581**
Customer Measures	.616**	.456**	.496**	.652**
Invention Measures	.499**	.549**	.495**	.498**
Overall MPM	.718**	.592**	.560**	.684**

*. $P < 0.05$ **. $P < 0.001$

As mention in Section 6.3.1, the surveyed hotels were divided into two categories depending on the number of rooms, the number of full-time employees, the number of guests and the

number of the available facilities (the number of part-time employees was excluded). These two categories were the 'Small-Size' hotels and the 'Big-Size' hotels. As it shown in Figure 6.19, and by using Mann-Whitney U test, there is a significant difference in the level of marketing performance between big-sized hotels (M= 4.56 ± .35) and small-sized hotels (M= 3.70 ± 0.56), U = 788, z = 5.4, p < 0.001. Moreover, there was a significant difference in all measures of marketing performance between big-sized and small-sized hotels.

These results suggest that size of hotel really does have an effect on marketing performance. These results reject the null hypothesis ($H2_0$) and support the alternative hypothesis ($H2_1$). Specifically, these results suggest that hotels with higher number of rooms, higher number of full-time employees, more facilities or higher number of guests achieved higher marketing performance scores (r = 0.64, 0.58, 0.63 and 0.57 respectively; p < 0.001).

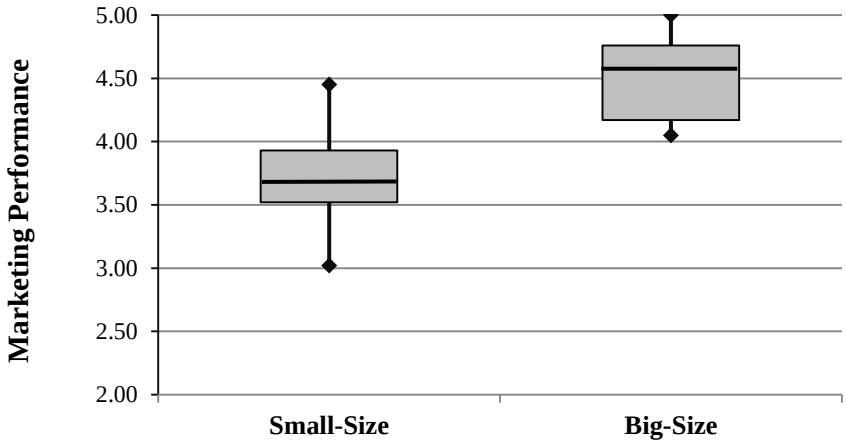


Figure 6.19 Marketing Performance across Hotel Size

6.7.4 The effect of hotel age on the marketing performance

Regarding hotel age, data analysis shows that there is no significant correlation between marketing performance scores for Jordanian upscale hotels and their age (r = 0.21, p = 0.1). As seen in Table 6.33, while there is no significant correlation between hotel age and the measures of marketing performance, data analysis shows only a weak significant positive correlation between hotel age and the final score of financial measures. The results suggest that older hotels reported better financial results than the newer hotels. However, these results support the null hypothesis ($H2_0$) and reject the alternative hypothesis ($H2_1$). This result reveals that 'Hotel Age' factor has no effect on marketing performance scores.

Table 6.33 Correlation between Marketing Performance and Hotel Age

Marketing performance measurement	*r*
Financial measures	.274*
Market measures	.115
Customer measures	.093
Invention measures	.201
Overall MP	**.213**

*. $P < 0.05$

6.7.5 The effect of hotel guests on the marketing performance

Despite the significant positive relationship between guest number and MP score (r= 0.56; $p < 0.001$), the author was seeking to investigate whether the features of these guests have an effect on marketing performance. Table 6.34 presents the correlations between certain categories of guests in one hand and marketing performance scores score in other hand. This table shows that both 'Guests as groups' and 'Guests as individuals' have the higher correlations with marketing performance scores. While the relationship between 'Guests as groups' and MP score is significantly positive (r= 0.50; $p < 0.001$), it is significantly negative between 'Guests as individuals' and marketing performance scores score (r= - 0.47; $p < 0.001$). These results suggest that most establishments with higher percentage of guests, who arrived as groups, rather than individuals, report higher marketing performance scores.

Furthermore, Table 6.34 shows that there is a significant positive relationship between the percentage of 'Business guests' and MP scores (r = 0.42; $p < 0.01$). These results suggest that most establishments with a higher percentage of guests who arrived to do business reported higher MP scores. However, data analysis did not show any significant relationship between MP scores and the percentage of hotel guests who stayed only for leisure. Moreover, the relationship between 'Resident guests' and marketing performance scores is significantly positive (r = 0.28; $p < 0.05$). These unanticipated results suggest that most establishments with higher percentage of Jordanian guests, rather than foreign guests, reported higher MP scores.

Table 6.34 Correlations between Different Guests' Categories and Marketing Performance

Categories of Guests	*r*	Categories of Guests	*r*
Individual guests	- 0.47**	Resident guests	0.28*
Guests as couples	0.08	Business guests	0.42*
Guests as families	0.37*	Leisure guests	0.18
Guests as groups	0.50**		

*. $P < 0.05$ **. $P < 0.001$

6.7.6 The demographics of the respondents and marketing performance

Regarding to the effect demographics of the participating respondents on ICT score, Table 6.35 indicates that 'Age' and 'Duration on the job' have no effect on marketing performance scores. However, there is a significant correlation between role of participating respondents and marketing performance. Moreover, Figure 6.20 indicates that there was a significant difference between the level of marketing performance reported by direct managers (M = 3.9 ± 0.6) and other respondents (M = 4.6 ± 0.5); t (59) = -3.6 $p < 0.05$. These results suggest role of participating respondents in hotels does have an effect on marketing performance scores.

Table 6.35 Correlations between MPM and the Demographics of Respondents

Correlations	Respondents age	Duration on job	Experience in ICT
Financial measures	.046	.222	.053
Market measures	-.120	-.057	.507**
Customer measures	-.086	-.170	.619**
Invention measures	-.160	-.097	.538**
Overall MP score	**-.172**	**-.080**	**.656****

**. $P < 0.001$

Regarding the effect of the respondents' experience in ICT on MP score, Table 6.35 indicates that there is a significant positive relationship between the overall experience of the participants in ICT and the final score of MP (r = 0.66; $p < 0.001$). Moreover, Figure 6.21 indicates that there is a significant difference in the level of marketing performance between respondents with low experience in ICT (M= 3.75 ± 0.5) and respondents with high experience in ICT (M= 4.38 ± 0.6); t (59) = -5.6, $p < 0.001$. These results suggest that respondents with a high average level of experience in ICT reported better marketing performance of their hotels. This result rejects the null hypothesis ($H2_0$) and supports the

alternative hypothesis ($H2_1$) that 'Overall Experience in ICT' is a major characteristic that affects the final score of marketing performance scores.

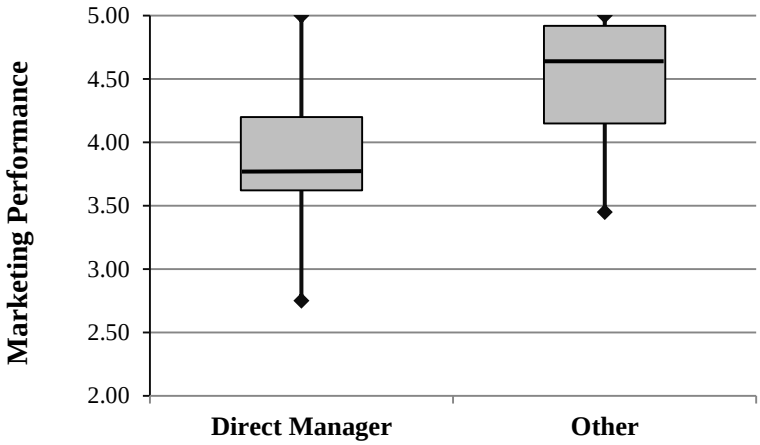


Figure 6.20 The Level of Marketing Performance against Respondent Role in the Business

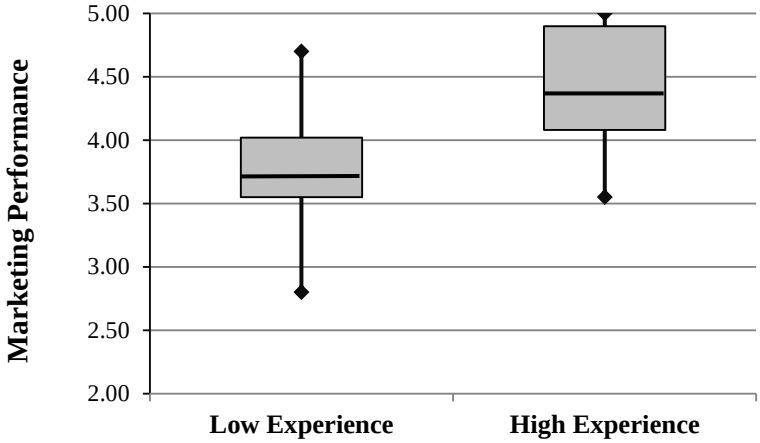


Figure 6.21 The Level of Marketing Performance against the Respondent Experience in ICT

6.8 The Relationship between ICT and Marketing Performance

The purpose of this section is to examine the relationship between the utilisation of different ICT systems and the marketing performance of Jordanian upscale hotels. Additionally, this section examines which aspects of marketing performance are more affected by ICT usage in Jordanian upscale hotels. The results were used to answer the research question (3) and to test hypothesis H3.

Q 3: ***"How ICT usages affect the marketing performance of Jordanian hotels?"***

H3: " The greater ICT usage the greater the measures of marketing performance".

6.8.1 Correlations between individual ICT tools and marketing performance

The researcher surveyed the availability; the connectivity and the usage of 48 different ICT solutions as well as the social media platforms that are used to support hotel operations (refer to Section 6.4). Figure 6.22 presents how these items correlate with the overall score of marketing performance (the correlations between ICT items and each aspects of marketing performance are presented in Table.7, Appendix VI). Items located in the top of Figure 6.22 highly correlate with marketing performance (strong positive relationship) and the items located in the bottom of the figure have no significant correlation with marketing performance (no significant relationship).

As can be see in Figure 6.22, there are some differences in the correlation scores across these items. The figure shows that the usage level of the 'EPOS or the restaurant' management systems by hotels recorded the highest correlation with the final score of marketing performance ($r = 0.70$; $p < 0.001$) followed by the level of using Websites with booking-enabled features as a mechanism for hotel distribution channel ($r = 0.63$; $p < 0.001$). Moreover, about one quarter of the surveyed ICT solutions (11 items) have an above average relationship with the marketing performance. These items include all the electronic distribution systems as well as broadband, Website, eMail, PMS, HRS, and the accounts receivable system. Similarly, nearby one quarter of the surveyed ICT solutions (10 items) demonstrate no significant relationship with the marketing performance. These items mostly include hardware, such as the Hand-Held EPOS; solutions for networking, such as the voice-over-IP; and some in-room guest service systems, such as the in-room electronic minibar.

r	ICT systems
0.70	EPOS / Restaurant MS
0.60	Website booking
0.50	Business eMail Account, A Website Usage, PMS, Sales & Marketing Analysis System, GDS, Accounts Receivable Systems, HRS, Broadband Internet, ADS
0.40	General Ledger Accounting, Wireless Internet, CRM System, Desktop PC, Electronic Door Locking System, Company Owned Intranet, Guest-Operated heating / cooling control switch, YMS, LMS, Hand-held PCs, Energy Management system, Desktop EPOS
0.25	Conference / Banqueting Management System, Laptops, eProcurement Software, Social Media, Do-Not Disturb/ Make-Up-Room Electronic Annunciation, In-Room Telephone, In-Room thermostat switch, Wired Internet, Work Order Maintenance, In-Room Printing Facilities
No Sig. Relation	Voice-Over-IP, Hand-Held EPOS, Remote Access to Company Network, Dial-Up Internet, In-Room sensor motion energy switch, In-Room Entertainment, Key card energy switch, Paid In-Room Internet, In-Room Electronic Minibar, Free In-Room Internet, Self-Service Kiosks

Figure 6.22 Correlation between Individual ICT Systems and Marketing Performance

These results suggest that more than three quarters of the surveyed ICT systems have a degree of correlation with the marketing performance. These results reject the null hypothesis ($H3_0$) and support the alternative hypothesis ($H3_1$). Specifically, these results suggest that hotels which used these kinds of systems to support their operations achieved higher marketing performance scores.

Further analysis methods were used to find out which ICT systems are the most important when predicting the overall score of marketing performance by using regression analysis. Figure 6.23 shows that usage level of EPOS / Restaurant Management System, Property Management Systems (PMS) and Leisure Management Systems (LMS) were the most important systems when predicting the overall score of marketing performance within the Jordanian hotels.

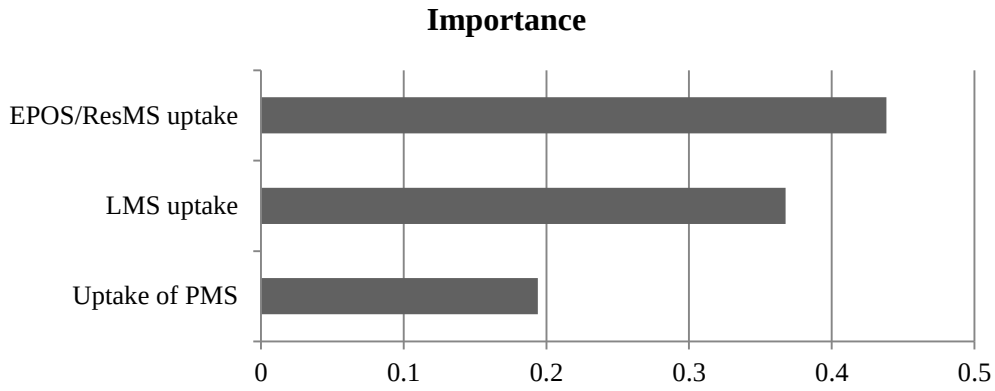


Figure 6.23 The Importance of ICT Systems for Marketing Performance

6.8.2 Relationships between ICT systems and the overall marketing performance

The author investigated the relationship between the marketing performance and the availability; the connectivity and the usage level of eight categories of ICT systems. Table 6.36 presents how these categories correlate with the final score of the marketing performance while Table 6.37 reports the results of the regression analysis. Since the *F* values in Table 6.37 are significant in all models (F = 10 to 66, $p < 0.05$ for all), the regression equations can help us to better understand the relationships between ICT systems and marketing performance.

Table 6.36 Correlation between ICT Categories and Marketing Performance

ICT Systems	Available	Intercon.	Usage Level
Hotel Front-Office Systems (HFOS)	.625**	.721**	.716**
Business Administration Systems	.413**	.675**	.607**
Business Intelligence Systems	.411**	.686**	.622**
Electronic Distribution Systems	.613**	.739**	.747**
Guest Service Systems	.368*	.425*	.409*
Hardware	.513**	__	.554**
General Networking Infrastructure	.455**	__	.554**
Social Media	.341*	__	.341*
Overall ICT	**.530****	**.707****	**.660****

*. $P < 0.05$ **. $P < 0.001$

Table 6.37 Regression Results for the ICT Categories and the Marketing Performance

ICT	*R-square*	*Adj. R^2*	*F value*	*Beta*
Hotel Front-Office Systems (HFOS)	0.50	0.49	58.5**	.158**
Business Administration Systems	0.38	0.37	35.7**	.142**
Business Intelligence Systems	0.37	0.36	34.2**	.182**
Electronic Distribution Systems	0.53	0.52	66.0**	.243**
Guest Service Systems	0.19	0.17	12.9*	.049*
Hardware	0.30	0.29	25.2**	.063**
Networking	0.30	0.29	25.1**	.042**
Social Media	0.15	0.13	9.9*	.376*
Availability	0.28	0.27	22.9**	.038**
Interconnectivity	0.39	0.38	37.4**	.054**
Level of usage	0.37	0.36	34.8**	.027**

*. $P < 0.05$ **. $P < 0.001$

As can be seen in Table 6.36 and Table 6.37, there are some differences in both the correlation and the coefficient scores across the different ICT categories. These tables shows that the usage level of the 'Electronic Distribution Systems' by hotels recorded the highest correlation with their marketing performance score ($r = 0.75$; $p < 0.001$). As can be seen in Table 6.37, if we know the usage level of 'Electronic Distribution Systems' for each hotel, we can explain 52% of the variance in the marketing performance for the different hotels. The estimated rate of change of the conditional mean of 'MPM' with respect to the level of using 'Electronic Distribution Systems', when all other factors are fixed, is 0.16 units.

The second highest correlation with MPM is recorded by the usage level of 'front-office system' ($r = 0.63$; $p < 0.001$). The contribution of 'front-office systems' to the marketing performance presented odds of ($\beta = 0.14$, $p < 0.001$) with overall model fit around 50%. However, the relationship between the uptake of social media solutions and the marketing performance has the lowest correlation ($r = 0.34$; $p < 0.001$). Even the social media was a significant predictor of the marketing performance ($\beta = 0.38$, $p < 0.05$); it can only explain 13% of the variance in the marketing performance score.

Furthermore, Table 6.36 suggests that the uptake of interconnected ICT systems has a strong relationship with marketing performance ($r = 0.71$; $p < 0.001$) rather than depending only on the volume of these systems ($r = 0.53$; $p < 0.001$). This is the case for all the surveyed ICT systems which emphasise the significance of ICT interconnectivity on the marketing performance within the hospitality industry. Moreover, the regression models in Table 6.37

indicate that when the marketing performance was predicted it was found that the number of interconnected ICT systems can explain the variance in the marketing performance more accurately than the overall number of ICT systems (38% and 27% respectively). The estimated rate of change of the conditional mean of 'MPM' with respect to the number of interconnected ICT systems, when all other factors are fixed, is 0.05 units.

These results specify that the influence of ICT usage has a positive impact on the marketing performance ($r = 0.66$; $\beta = 0.03$; $p > 0.05$) with overall model fit around 36%. These results suggest that ICT systems have a significant and positive relationship with marketing performance. These results reject the null hypothesis ($H3_0$) and support the alternative hypothesis ($H3_1$). In detail, these results suggest that hotels with a higher number of ICT systems; higher number interconnected ICT systems; and higher level of ICT usage achieved higher marketing performance scores ($r = 0.53$, 0.71 and 0.66 respectively; $p < 0.001$).

6.8.3 The impact of ICT on the different measurements of marketing performance

Further analysis methods were used to find out if ICT has an impact on the four categories of marketing performance. The level of ICT usage obtained in Section 6.4.9 was tested with marketing performance scores in Table 6.24 to examine which aspects of marketing performance are most affected by ICT usage and then to answer the research question (3.2).

Table 6.35 presents the correlations and the regression analysis results for the availability, the interconnectivity and the usage level of ICT systems as independent variables and the financial measures of marketing performance as a dependent variable. As shown in this table, the front-office systems and the electronic distribution systems are the only correlated ones with the financial measures ($r = 0.34$ and 0.26 respectively; $p < 0.05$). The contribution of 'front-office system' on the financial measures presents an odds of ($\beta = 0.1$, $p < 0.01$) with overall model fit around 10% while the contribution of 'electronic distribution system' on the financial measures presents an odds of ($\beta = 0.11$, $p < 0.05$) with overall model fit around 5%. Therefore, a higher implementation of these systems leads to a higher level of satisfaction with the 'financial measures' (e.g. profit).

Table 6.38 Regression Results for the ICT Categories and the Financial Measures

ICT	*R*	*Adj. R^2*	*F value*	*Beta*
Hotel Front-Office Systems (HFOS)	.342*	0.10	7.70**	0.095**
Business Administration Systems	.228	0.04	3.22	__
Business Intelligence Systems	.177	0.02	1.88	__
Electronic Distribution Systems	.260*	0.05	4.22*	0.108*
Guest Service Systems	.171	0.01	1.74	__
Hardware	.087	- 0.01	0.37	__
General Networking Infrastructure	.036	- 0.02	0.07	__
Social Media	.193	0.02	2.25	__
Availability	.144	0.00	1.23	__
Interconnectivity	.239	0.04	3.50	__
Level of usage	.179	0.02	2.35	__

*. $P < 0.05$ **. $P < 0.01$

However, the results in Table 6.35 specify that the influence of ICT availability, ICT interconnectivity or ICT usage has no impact on the satisfaction level with the financial indicators. These results support the null hypothesis ($H3a_0$) (i.e. there is no relationship between ICT adoption by Jordanian hotels and the financial measures of their marketing performance) and reject the alternative hypothesis ($H3a_1$) (i.e. there is a significant relationship between ICT adoption by Jordanian hotels and the financial measures of their marketing performance).

Regarding the non-financial measure of the marketing performance, Table 6.36 presents the correlations between the availability, the interconnectivity and the usage level of ICT systems from one side and the non-financial measures of marketing performance from the other side while Table 6.37 reports the results of the regression analysis. As shown in Table 6.36, the 'invention measures' of marketing performance are the most correlated with the level of ICT usage ($r = 0.56$; $p < 0.001$), especially, with the number of the interconnected ICT system available within the hotel ($r = 0.67$; $p < 0.001$). Therefore, hotels with a higher level of ICT implementation have a higher level of satisfaction with the 'invention measures' (e.g. the number of new products or services launched by the hotel). Both the 'market' and the 'customer' measures also have significantly positive relationships with the level of ICT usage ($r = 0.54$; $p < 0.001$ for both).

Table 6.39 Correlation between ICT Categories and the Non-Financial Measures

ICT Systems	Market measures	Customer measures	Invention measures
Hotel Front-Office Systems (HFOS)	.489**	.530**	.622**
Business Administration Systems	.553**	.593**	.625**
Business Intelligence Systems	.450**	.465**	.593**
Electronic Distribution Systems	.478**	.478**	.547**
Guest Service Systems	.351**	.245	.504**
Hardware	.391**	.394**	.621**
General Networking Infrastructure	.373**	.449**	.617**
Social Media	.257*	.174	.309*
ICT availability	.394**	.380**	.588**
ICT interconnectivity	.551**	.553**	.669**
Level of ICT Usage	.542**	.543**	.563**

*. $P < 0.05$ **. $P < 0.01$ ***. $P < 0.001$

Table 6.40 Regression Results for the ICT Categories and the Non-Financial Measures

ICT	*R*	*Adj. R^2*	*F value*	*Beta*
Hotel Front-Office Systems (HFOS)	.685**	0.35	33.5**	0.163**
Business Administration Systems	.586**	0.30	27.2**	0.158**
Business Intelligence Systems	.609**	0.27	22.9**	0.193**
Electronic Distribution Systems	.738**	0.41	43.2**	0.264**
Guest Service Systems	.388*	0.13	10.2*	0.055*
Hardware	.551**	0.25	20.9**	0.071**
General Networking Infrastructure	.561**	0.27	23.5**	0.050**
Social Media	.280	0.07	05.0*	0.333*
Availability	.516**	0.25	20.9**	0.042**
Interconnectivity	.687**	0.35	33.1**	0.059**
Level of usage	.312*	0.34	31.5**	0.030**

*. $P < 0.05$ **. $P < 0.001$

All the suggested regression models presented in Table 6.37 were statistically significant ($F > 5$; $p < .05$) and the overall fit for these models (adjusted R^2 values) were between 7% to 41% which suggests that these models are suitable for explaining the influence of ICT system on the non-financial measures of the marketing performance. As Table 6.37 indicates, the Electronic Distribution Systems usage is the most correlated ICT index with

the non-financial measures of the marketing performance ($r = 0.74$; $p < 0.001$). Therefore, a higher level of ICT implementation leads to a higher the level of invention measures. Moreover, the results in Table 6.37 specify that the influence of ICT availability, ICT interconnectivity and ICT usage has a positive impact on the satisfaction level with the non-financial indicators. These results reject the null hypotheses ($H3b_{0,}$ $H3c_0$ and $H3d_0$) (i.e. there is no relationship between ICT adoption by Jordanian hotels and non-financial measures of their marketing performance) and support the alternative hypotheses ($H3b_{1,}$ $H3c_1$ and $H3d_1$) (i.e. there are significant relationships between ICT adoption by Jordanian hotels and non-financial measures of their marketing performance).

Chapter 7: Research Discussion and Findings

7.1 Introduction

Last chapter presented the research discussion and findings.

This chapter begins by providing insights into the quality of the research methods and the main features of the surveyed hotels in Jordan (Section 7.2). It then demonstrates a discussion about the results regarding ICT adoption in Jordanian hotels (Section 7.3) and their marketing performance (Section 7.4). In Section 7.5 the results of the relationships between ICT and marketing performance are discussed. Afterwards, a summary of the major findings emerging from the data analysis and discussion chapters is presented in Section 7.6. These finding and the results of hypotheses testing are presented according to the research questions. The final section (Section 7.7) of this chapter examines the objectives of study and how they are met.

7.2 The Quality of the Research Methods

A major part of this research is descriptive and explanatory, and aims to provide insights into the relationship between ICT uptake and marketing performance. Due to this descriptive and explanatory nature, the work has taken a deductive approach for knowledge generation. A quantitative research method was used to address the research question. This method was taken after considering the general methodological issues (positivist versus phenomenological issues) and previous research undertaken in similar areas and sectors. The data collection was developed through an online questionnaire, a useful technique that has been previously used for studies investigating ICT impact on the hospitality industry (e.g. Sigala 2002; Sigala 2005; Reino 2009).

Previous literature has proposed a number of frameworks to evaluate ICT implementation in the tourism industry in general, and in the hospitality sector in particular (e.g. Sigala 2003; Ham et al. 2005; Law and Jogaratnam 2005; Sahadev and Islam 2005; Beldona and Cobanoglu 2007; Karadag and Dumanoglu 2009; Reino 2009). These frameworks have limitations with regards to their methodology and scope. In this research, Reino's (2009) framework for 'eTourism Capability' was adopted, as it was (as it was in 2012) the most comprehensive and recent framework that addressed the previous limitations in the literature.

With regards to the model of marketing performance measurement, previous studies have provided a number of models to evaluate and benchmark marketing performance (e.g. Bonoma and Clark 1988; Clark 1999; Morgan et al. 2002; Ambler and Kokkinaki 2002; Rust et al. 2004). For the purposes of this research, Ambler and Kokkinaki's (2002) model was selected due their direct implementation and their consideration of the financial outcomes of marketing activities. The previous model and framework were adopted and adjusted by adding additional ICT solutions for Reino's (2009) framework (e.g. social media) and editing a few marketing metrics in Ambler and Kokkinaki's (2002) model (e.g. occupancy rate). Hence, these adjustments show the innovativeness of this work.

The target population for this research was three-to-five-star hotels in Jordan. This research follows previous literature in targeting three, four and five star hotels, since these types of hotels are more inclined to adopt ICT solutions (e.g. Siguaw et al. 2000; Lee et al. 2003; Sahadev and Islam 2005; Ruiz-Molina et al. 2011; De Ascaniis et al. 2015). Many researchers have suggested that where relatively budget level hotels have adopted ICT systems, such systems are minimal and often only at operational level (Chatzipanagiotou et al. 2011). The majority of previous research has focused on the hospitality industry in developed countries like the U.S. (e.g. Siguaw et al. 2000; Yeh et al. 2005; DiPietro and Youcheng 2010; Lin et al. 2010); the U.K. (e.g. Sigala 2003; Reino 2009) and Spain (e.g. Ruiz-Molina et al. 2011). There is a need therefore to examine the increasing profitable hospitality industry in developing nations such as Jordan.

Given the relatively small research population (i.e. 112 hotels), the author decided it was possible and preferable to survey the entire population through online questionnaires rather than merely draw a sample. The response rate represents around 55% of the entire number of the targeted hotels which is significantly larger than has been achieved by previous research into the effect of ICT on hotel establishments which has ranged from 8% (Sigala 2003) to 44% (Lee et al. 2003). In addition to the fact that the research population was relatively small and easily reachable, this high response rate is may be due using of the online questionnaire as a mean of data collection. This result, also, reflects the quality of data collection procedures.

The majority of respondents were general managers of the hotels in which they worked. This means that most of the opinions expressed in the questionnaire were from the people who controlled both hotel operations and the long-term plans of the hotel. A great number of theoretical and empirical studies have mainly focused on managers' perceptions of different ICT solutions within the hotel context (e.g. Siguaw et al., 2000; Lee et al., 2003; Sigala,

2003; Law and Jogaratnam, 2005; Sahadev and Islam, 2005; Ruiz-Molina et al. 2011; Richard 2013). The author is aware that the perceptions of other stakeholders (e.g. customers) on the same questionnaire may be different from the managers' perspective. This topic itself invites further research.

Furthermore, data analysis shows that hotel managers in Jordan have a relatively high level of experience in ICT (refer to Section 6.3.3). In developing countries, Tetteh and Snaith (2006) found that business managers have a high level of technical skills; however they need to build on their business knowledge and communication skills. This result suggests that the collected technical data on the adoption of different ICT solutions is accurate and valid.

The data arising from this study provides more details regarding the characteristic of Jordanian hotels, e.g., their age, size and location. Here, hotel size was determined based on suggestions from previous literature depending on the number of full-time employees, the number of guestrooms and the number of available facilities (e.g. Siguaw et al. 2000; Schegg et al. 2002; Hollenstein 2004; Murphy et al. 2006; Bocquet et al. 2007) (refer to Section 6.3.1). Moreover, this research provides information about the demographics of managers/ owners of the surveyed hotels as well as information about the profiles of their guests.

The statistics from the surveyed hotels mirrored the statistics held by MOTA and JHA regarding the entire Jordanian hotels. For example, data analysis indicated that the data on the age of hotels included within the survey for this research matched the statistics held by JHA ($Z = 0.26$, $p > 0.05$). Likewise, statistics regarding the number of guestrooms from the surveyed hotels have the same distribution with the statistics held by MOTA ($t = 0.19$, $p = 0.85$). Therefore, there is no effect of nonresponse bias in this research (refer to Section 6.2).

7.3 ICT Uptake by Jordanian Upscale Hotels

This section provides a better understanding of the phenomena of ICT uptake in Jordanian upmarket hotels and the effect of business characteristics on the ICT usage by the hotel industry. Results from this research suggest that PCs, Broadband Internet, eMail and Website were the most heavily adopted ICT hardware and solutions by Jordanian upmarket hotels. These results correlate with the results from Sigala (2003) and Reino (2009) who studied the UK hotel market, Siguaw et al. (2000) results for hotels in the U.S. and Richard (2013) for hotels in South-Africa.

Most respondents (95%) adopted at least one kind of front-office system. PMS was the most heavily adopted front-office system, with 69% of respondents indicating that they used such

a system. This result is quite similar to the result from Sigala (2003) which revealed that 93% of U.K hotels had adopted front-office systems and 84% of them had a PMS. This result is also mirrored with the results from Ma et al. (2003) which revealed that PMS were widely used in Chinese hotels ranked as 3-star or above. However, these results diverge significantly in comparison with the results arisen from Reino (2009) which had found that only 19% of the Scottish hospitality sector used front-office systems with less than 14% of them had PMS. The reason for such differences may be due to the difference between Reino's (2009) study and the current study regarding the categories of the surveyed hotel.

Furthermore, respondents were asked whether they had an Internet reservation system or a functional electronic distribution system. From the data collected, it was observed that all the respondents had at least one kind of system. Comparing this result with previous ones reveals that there was a rapid evolution in adopting these kinds of systems during the last decade; especially, in mid-price and upscale hotels. For example, Ma et al. (2003) found that there was no central hotel reservation system exists in the Chinese hospitality industry. Moreover, Leong (2001) revealed that 79% of hotels in Singapore ranked as three-star or above had these systems. This result also reveals that mid-price and upmarket hotels are more willing to adopt these systems than lower-ranks hotels. For example, the uptake percentage for these kinds of systems was 64% of 477 different hospitality establishments in the U.K. (Reino 2009).

This research also examines the uptake of five different applications of Business Administration Systems. The results show that 98% of managers stated that their establishments had already adopted at least one of those five ICT applications. However, as seen in Figure 6.4, the uptake level of each system varied. The most adopted Business Administration Systems are those related to finance and accounting functions (77%-79%) followed by those designed for human resource management (69%). This result supports the results from Sigala (2003), Ham et al. (2005), Reino (2009) and Ruiz-Molina et al. (2011) that finance, accounting and personnel systems are the most common Business Administration Systems and Back-office applications in hotel establishments. Three more ICT applications were listed in the questionnaire to investigate the adoption of the Business Intelligence Systems; especially, ICT applications to manage sales, marketing and yield as well as to manage customer relationship (CRM). Data analysis reveals that Business Intelligence Systems are fairly evenly spread in Jordanian hotels ranked as three-star or above (49%-69%) and that 88% of the respondents reported that they have at least one kind of this software. This result puts Business Intelligence Systems category as the lowest

adopted ICT systems in the Jordanian hotels. The reason for this result may be because that Jordanian hotel management still depends more on human efforts for supporting decision-making process regarding CRM, yield management, and sales and marketing management. This result lines up with Reino's (2009) finding that Business Intelligence Systems are the lowest adopted ICT systems in the hospitality industry.

All Jordanian hotels have at least one kind of ICT system for guest services. However, as seen in Figure 6.7 and Figure 6.8, the uptake level of each system varied. For instance, in-room telephones were the most common (74%). This result matches with the results from Sigala (2003), who found that telephone systems are the second most adopted ICT system after PMS in three-star and above hotels. The second highest adopted Guest Service Systems in Jordanian hotels is in-room Internet (paid and free). The reason for high adoption rates of in-room Internet may be due the recent developments in the wireless technology and networks in Jordan. These developments allow hotels to provide such technology in guests' rooms at a relatively lower cost than previously. The guest-operated switch for cooling/heating also received high ratings, however Jordanian hotels rarely used the in-room thermostat. The reason for this may be in the fact that Jordanian hotels depend more in the separate air-conditioner units for each room rather than a central heating/cooling systems. The lowest adopted ICT system for guest facilities in Jordanian hotels are in-room printing facilities. This result matches the results from Reino (2009) who found that in-room printing facilities are the lowest adopted ICT system in hotel establishments from the U.K.

Jordanian hotels have adopted different ICT hardware to support their operations. Understandably, PCs and laptops are the most utilised hardware. This result is aligned with Sigala (2003) and Reino's (2009) results for hotels in the U.K., and Ruiz-Molina et al.'s (2011) results from research in Spain. Data analysis, also, shows that Jordanian hotels have significantly invested in other hardware such as hand-held PCs, electronic point of sales (EPOS) hardware, and self-service kiosks. The reason for such investments may be to achieve a diversity of platforms that can provide a wide-range of services and operations. Moreover, all Jordanian hotels have an Internet access. Broadband is available in all hotels except one. Dial-up Internet access is available in a significant number of hotels (12%), although this may be as a backup for broadband Internet access. A significant number of Jordanian hotels have adopted wireless technology (64%), however, wired Internet access received a higher score (84%). In addition to the Internet access, both eMail and Website technologies are the highly adopted by Jordanian hotels in their networking infrastructure. This result is aligned with the finding from Siguaw et al. (2000), Sigala (2003) and Reino

(2009) that these technologies are the most significant for technology infrastructure in the hospitality industry.

This research also examines the uptake of six different social media platforms. The results show that Jordanian hotels are familiar with some of these platforms. For instance, Facebook received the highest score (85%), followed by Twitter (49%). This may be interpreted that Jordanian hotels perceive these platforms as the most used ones by their potential guests.

Overall, this research suggests significantly high level of availability of ICT systems in Jordanian hotels. Indeed, the highest number of ICT systems found within a single hotel totalled 44 different items out of 46 items. The minimum number was 13 items and the overall mean was 30 items. Regarding the level of interconnectivity (the integration level) with previous software, the results show that not all respondents claiming the previous software availability also had them integrated with PMS. This means that the levels of interconnectivity (integration level) amongst this kind of software were lower than their adoption levels. This result is expected; as Sigala (2003) suggested that hospitality firms usually follow a piecemeal approach when implementing ICT.

Despite the high score for the availability of ICT systems, data analysis shows that more than the half of the surveyed hotels (52%) were located in the lower-range of ICT usage with three-star hotels featuring predominantly in this group (refer to Table 6.13, p.178). However, all the surveyed five-star hotels and more than two thirds of four-star hotels were in the higher-range of ICT usage. These results reveal that Jordanian hotels are initiative to invest in the new ICT systems in sooner than making the full use of the existing one. The reason for this result may be due to the lower level of the interconnectivity (i.e. the level of integration) amongst the existing ICT system within Jordanian hospitality industry.

Regarding the effect of hotel characteristics on ICT uptake, the findings suggest that there is a significant influence for a wide range of business characteristics on ICT uptake. These findings support the previous literature on the adoption of ICT by businesses (Connolly 2000; Siguaw et al. 2000; Schegg et al. 2002; Murphy et al. 2003; Hollenstein 2004; Sahadev and Islam 2005; Khemthong 2006; Murphy et al. 2006; Bocquet and Brossard 2007; Bocquet et al. 2007; Reino 2009; Šerić and Gil-Saura 2011; Šerić et al. 2014). These business characteristics consist of all the variables included in data analysis, for example, the age, the size and the location of businesses, type of ownership and operating status, as well as, market segmentation (i.e. star-rating, the main type of customer served by businesses).

Firm size is the most statistically significant variable for ICT uptake by Jordanian upmarket hotels. This result is mirrored in previous literature on businesses environments generally

(Hollenstein 2004; Bocquet and Brossard 2007) and within the hospitality industry in particular (Siguaw et al. 2000; Schegg et al. 2002; Sahadev and Islam 2005; Khemthong 2006; Murphy et al. 2006; Bocquet et al. 2007; Reino 2009). This denotes that in the hospitality industry, the benefits from economies of scale, the availability of financial resources and preferential access to capital markets are being bigger for big-sized establishments encourages investments in ICT projects (e.g. Sahadev and Islam 2005). The findings from this study do not align with the literature which, proposes that ICT is not a phenomenon dominated by large-scale establishments (e.g. Oliveira and Martins 2010) or that firm size does not have much of an impact on ICT adoption within tourism industries (e.g. Hashim et al. 2010). This study does not support the argument which highlights a supposed disadvantage of having multiple levels of bureaucracy in big-sized establishments, which, as the arguments holds, can obstruct decision-making flowing regarding new projects and ideas (Hashim et al. 2010; Oliveira and Martins 2010).

Almost all ICT systems surveyed within this study correlated with at least one of the measures indicating hotel size as suggested by the previous studies, namely the number of employees (Hollenstein 2004; Bocquet et al. 2007), the number of bedrooms (Siguaw et al. 2000; Schegg et al. 2002; Murphy et al. 2006) the number of available facilities and the number of the annual guests. The only ICT system that does not seem to be affected by firm size is the 'Social Media' and this is special important for managers that consider their establishments is too small to benefit from social media solutions. The reason for this result is may be in the fact that social media just need to be connected to the Internet. The relationship between hotel size and the Internet adoption is questioned in the literature (e.g. Hashim et al. 2010). According to Al-allak (2010), the size of tourism firms in Jordan do not appear to determine whether or not they connect to the Internet.

Moreover, this research aligns with the literature, which proposes that the availability of ICT applications increases with the hotel category (e.g. Schegg et al. 2002; Sahadev and Islam 2005; Reino 2009; Šerić and Gil-Saura 2011; Šerić et al. 2014). It is not surprising that five-star luxury hotels have wider range of ICT system; especially for guest services. This result may be due to the fact that visitors who stay in hotels of higher grades demand further ICT facilities (e.g. Sahadev and Islam 2005); for instance, Internet access in all rooms. Therefore, hotels of a higher star-ranking are more inclined to adopt new ICT technologies than hotels of a lower grade.

However, data arising from this research reveals that there are no significant differences between chain and independent hotels regarding the overall availability, integration and

usage of ICT. This result does not agree with results from previous literature, which indicates a negative relationship between the degree of independence and ICT adoption within the hospitality industry (Siguaw et al. 2000; Schegg et al. 2002; Murphy et al. 2006; Bocquet et al. 2007; Reino 2009; Hashim et al. 2010). Moreover, there are no significant differences in the ICT scores between sole-owned hotels and company-owned ones. This result is not aligning with the result from Reino (2009) that ownership type influences ICT adoption in hotel establishments. These results show that independent hotels and sole-owned hotels in Jordan may succeed in copying the ICT setting in chain and company-owned ones.

Regarding the effect of hotel location on ICT adoption, data analysis shows that hotels in Dead-Sea region were the highest adopters of ICT systems to support their activities followed by the hotel market in Amman and then Aqaba. The hotel market in Petra came last (refer to Figure 6.14). This results are explained by the fact that respondent hotels in Dead Sea region are mainly five-star (refer to Table 6.1, p.153) and they seem to be well equipped to host notable events, for example, the meeting of the World Economic Forum in 2011. Moreover, respondent hotels in Petra region are mainly in the three-star category and they seem to be affected by the nature of their guests who conduct a short visits seeking tours in the heritage city or doing some adventures and camping in the nearby Wadi-Rum area. However, data analysis does not show any significant differences on ICT adoption across all ICT indexes between hotels in Amman and hotels in other locations. Consequently, this study does not align with suggestions in the literature which highlight the impact of the "business location" on ICT adoption (e.g. Nambisan and Wang 2000; Sahadev and Islam 2005).

The findings from this study do not align with literature, which suggests an effect for the 'age of establishments' on the adoption of ICT systems (Hollenstein 2004; Murphy et al. 2003; Murphy et al. 2006; Sahadev and Islam 2005). Particularly, the findings from this study contradict findings, which suggest negative correlation between the "age of establishments" and the "ICT adoption". Hollenstein (2004) suggested that the theoretical studies that focus on the impact of age on ICT adoption are inconclusive. For example, some studies suggest a positively correlation between older aged establishments and ICT adoption, whereas, some studies suggest negative a negative correlation, based on the idea of lower costs of implementation by younger establishments (e.g. Dunne 1994; Sahadev and Islam 2005). The results aligned with those findings that suggest a positive correlation, with older establishments using ICT systems in their operations. Nevertheless, it should be noted that these associations present a small correlation. Consequently, this suggests that the effect that

the ‘age of the establishment’ on the adoption of ICT by the hospitality sector is marginal, and may be explained by the influence by other businesses characteristics.

The results of this research did not find any correlation between guest type and ICT adoption. For example, Jordanian hotels have the same ICT systems regardless the percentage of their guests who arrive as individuals, couples or families. This means that Jordanian hotels do not consider this variable when adopting ICT systems. There is, however, a small degree of convergence between ICT adoption and the percentage of hotel guests who arrives as groups. Moreover, the purpose of guest stays (i.e. for business or just for leisure) does not affect the level of ICT adoption. This result does not align with previous literature, which suggests that business guests demand different or more ICT solutions form leisure guests (e.g. Yeh et al. 2005; Reino 2009). This result suggests that leisure travellers to Jordan may be now more sophisticated and demanding of ICT solutions the same as business travellers. The percentage of foreign guests does not appear to be a factor in ICT adoption, nor does the percentage of Jordanian guests. These results question the proficiency of Jordanian hotels to consider their market segmentations when adoption different ICT solutions.

Finally, regarding the effect of respondents’ demographics on ICT adoption, the results from this research do not suggest any relationship between the age or duration on the job of the respondents to this survey and the adoption of ICT that aligns with Reino’s (2009) results. Moreover, there is a weak relationship between ICT adoption and the respondent’s position in the hotel (Table 6.19, 185). Unlike small and medium-sized hotels (e.g. Murphy and Kielgast 2008), the demographics of the owner/ manager do not influence the adoption of ICT. However, data analysis shows that there was a significant relationship between management experience in ICT and the ICT adoption by Jordanian hotels ($\beta = 2.3$, $p < 0.05$). The reason for this result may be the fact that respondents with a high level of experience in ICT are capable in introducing new ICT systems than those with a lower level of experience. This result aligns with previous literature, which suggests a significantly positive relationship between ICT adoption and management experience on ICT (e.g. Reino 2009).

7.4 The Marketing Performance for Jordanian Upscale Hotels

This section considers the marketing performance of Jordanian hotels with a three-star rating or above. The results from this research suggest that Jordanian hotels have a relatively high level of satisfaction with their marketing performance (i.e. 4.01 in scale of 5). Table 6.27

(p.192) presents the satisfaction level for the four categories of marketing measurements (i.e. financial measures, market measures, customer measures and invention measures). These measures were discussed in previous studies e.g. Ambler and Riley (2000), Ambler and Kokkinaki (2002), Llonch et al. (2002), Morgan et al. (2002), Ambler (2003), Ambler and Xiucun (2003), Ambler et al. (2004), Barwise and Farley (2004), Chun (2007), O'Sullivan and Abela (2007), and Nwokah (2009). A standard deviation of 0.65 in the final score of marketing performance presents significant differences in the level of marketing performance across hotels.

As shown in Table (6.21, 188), profits and turnover scored the highest level of satisfaction (4.3/5 and 4.2/5 respectively). Consequently, most Jordanian hoteliers believe that their profits and turnovers are slightly above those obtained by their known competitors. This finding is congruent with the findings from a study undertaken by Claver-Cortés and Pereira-Moliner (2007), which indicated that hotel managers in Spain highly evaluate their financial performance. As the 'Agency Theory' suggests, hotel managers may be eager to transmit the performance information in a way that is positive to them. Financial data is particularly sensitive in a business environment.

Market measure of marketing performance comes second after the financial measure with an average score of 4.08 out of 5.00. As Table (6.22, p.189) demonstrates, hotel managers in Jordan have the same level of satisfaction with both market share and occupancy rate (4.08 out of 5.00). This finding indicates that Jordanian hospitality firms face weaker competitors in their targeted market share.

Regarding customer measures of marketing performance, 'perceived service quality' scored the highest level of satisfaction in this category (4.07 in scale of 5). This result contradicts a study undertaken by Al Khattab and Aldehayyat (2011) for 3-, 4- and 5-star hotels in Jordan. They found that the scores of hotels' service quality performance ranged from 2.6 to 3.9 in scale of 5. The reasons behind these contradictory findings may lie in the fact that Al Khattab and Aldehayyat (2011) measured the perceptions of service quality from the customers' point of view while this study examined the managers' point of view. Further, the study of Al Khattab and Aldehayyat (2011) was administered to the hotels that were only located in Aqaba and Petra and excluded the hotels from Amman and the Dead-Sea.

As can be seen in Table 6.23, marketing metrics of 'customer awareness of business brand', 'new customer gained' and 'customer loyalty' have a similar level of satisfaction (4.02 and 4.03), followed by the metric of 'customer satisfaction' (3.98). However, the metric of 'customers purchase intention' comes in last in this group with a score of 3.9 out of 5.0. It is

possible that ‘customers purchase intention’ follows after ‘customer satisfaction’ as suggested by Ruiz-Molina et al. (2011) that highly satisfied tourists are more likely to repeat their visit. These results reveal the importance of customer measures of marketing performance for hotel establishments, in keeping with, Bowen and Sparks (1998) belief that customer behaviour is important when studying marketing performance in the hospitality industry.

Regarding the invention measures of marketing performance in Jordanian hotels, data shows that these metrics finished last comparing to other metrics, however they did manage to achieve a high score of satisfaction (refer to Table 6.25). This result supports Rayna and Striukova’s (2009) findings, which emphasise the importance of innovation in hotels. Additionally, this result supports the findings from a study by Victorino et al. (2005), which argues that service innovation matters for hotel selection. This finding suggests that Jordanian hotels are facing highly innovative competitors and do not align with Gray et al.’s (2000) argument that hospitality organisations reported a much lower percentage of total sales from new products than other organisations be because they face less innovative competitors. Buhalis and Law (2008) argue that innovative tourism organisations have the ability to divert expertise and resources to servicing consumers and provide a higher value added transactions.

There is a body of literature that suggests the potential effects of organisation size on marketing performance (e.g. Leong 2001). For this study, the results show that larger hotels have a higher level of satisfaction with marketing performance than smaller hotels. This may be due to greater resources being available for big-size hotels to invest in marketing activities. According to Claver-Cortés and Pereira-Moliner (2007), big-size hotels (depending on the number of rooms and number of employees) achieve the highest profits, which can be explained by their economies of scale. An hotel’s class also appears to have a positive impact on the marketing performance of hotels in Jordan (ANOVA test; $F = 30.77$, $p < 0.001$). This is understandable, as hotels of a higher grade have additional facilities, and are therefore more frequented by visitors.

According to the literature, there is a relationship between marketing performance of hotels and their location. According to Claver-Cortés and Pereira-Moliner (2007), if a hotel is located in a more competitive destination with more advanced marketing strategy, this hotel will most probably have a better chance of improving its marketing performance. However, the results from this research do not show any differences in marketing performance among hotels in different locations. The reasons for this may lie in the fact that Jordanian hotels

compare their marketing performance with their main competitors who operate in the same location.

Finally, data analysis shows that hotel ownership and management type have no relationship with marketing performance of Jordanian hotels. This result relates to the arguments by some literature which indicated that the effect of 'Type of Ownership' on organisation may only relate to an interaction with organisation size (Connolly 2000). However, the profile of hotel guests (e.g. the purpose of stay) impacts the marketing performance. Figure 6.20 indicates that the satisfaction levels reported by direct managers are lesser than those reported by others. The results suggest that the role of participating respondents in hotels and their expertise has an effect on marketing performance scores.

7.5 The Relationships between ICT Systems and Marketing Performance

There is a significantly positive relationship between hotel front-office systems (HFOS) and marketing performance ($r = 0.72$, $p < 0.05$). This category of ICT systems has the second highest influence on marketing performance after electronic distribution systems (refer to Table 6.37). This result lines up with results from previous literature, which shows the positive impact of such system on improved customer satisfaction and, therefore, the overall marketing performance (Ham et al. 2005; Lam et al. 2007; Kim et al. 2008b; Reino 2009). In addition to the electronic distribution systems, HFOS is the only category of ICT systems that has a significant influence on the financial measures of marketing performance (i.e. profit and turnover). This result may be due the fact that HFOS are significantly important to reduce cost and improve employee productivity (Lam et al. 2007; Kim et al. 2008b).

Although HFOS also correlate with market measures (e.g. market share) ($r = 0.49$, $p < 0.05$), HFOS is correlated to a higher degree with invention measures of marketing performance ($r = 0.62$, $p < 0.05$). This result emphasises the importance of HFOS for service innovation in Jordanian hotels. HFOS has also correlation with customer measures (e.g. intention of repeat visitation, and customer satisfaction and loyalty) of marketing performance ($r = 0.49$ and 0.53 respectively, $p < 0.05$). This result is aligning with a study by Emir and Kozak (2011) of Turkish hotels. They found that front-office services were significance in providing high quality services (e.g. speeding hotel check-in and check-out services), which also leads to a higher intention of repeat visitation.

As Figure 6.22 shows, electronic-points-of-sales systems (EPOS) and restaurant management systems are the highest individual systems of HFOS that impact marketing

performance. This is followed by property management systems (PMS) and leisure management systems (LMS). This demonstrates that Jordanian hotels have benefited from these ICT solutions in order to reduce costs and increase service quality and employee productivity. Ultimately this has improved their marketing performance. This result is aligning with the result from Reino (2009), which argued that these ICT systems have a high contribution on business performance in hotel establishments. However, the conference/ banqueting management systems (C/BMS) have not shown any significant correlation with the marketing performance. Although C/BMS have a significant impact on business performance in hotels (Reino 2009), the results arisen from this research indicate that Jordanian hotels may still not use C/BMS to manage the events and conferences in a way that might improve their marketing performance.

Electronic distribution systems are the highest category of ICT systems that influence the marketing performance of Jordanian hotels (refer to Table 6.37). There is a significantly positive relationship between marketing performance and level of Electronic Distribution Systems availability, interconnectivity and usage ($r = 0.62$, 0.74 and 0.75 respectively, $p< 0.05$). These results match with results from previous literature, which has suggested the importance of Electronic Distribution Systems for hotel business (Sigala 2003; O'Connor and Frew 2004; Reino 2009). It also matches with previous literature, which found that the most important effect of using ICT in hotels was to increase access to local and overseas markets (Garces et al. 2004). Therefore, it is not surprise that the Electronic Distribution Systems category is significantly related to market measures (i.e. the relative market share and occupancy rate rate) ($r = 0.48$, $p < 0.05$).

As mentioned above, Electronic Distribution Systems and HFOS are the only categories of ICT systems that have a significant influence on the financial measures of marketing performance. This result may be due the fact that Electronic Distribution Systems is important in receiving money transactions (O'Connor and Frew 2004). All Electronic Distribution Systems are positively related to all measures of marketing performance; however, these relationships vary across the different Electronic Distribution Systems. This result is aligned with the results from Demirciftci et al. (2010), which suggested significant differences in hotel-room rates between direct and indirect distribution channels. As Figure 6.22 shows, the use of a booking-enabled Website has the highest effect on marketing performance followed by both GDA and ADS. This result may be explained by the fact that using Websites as a distribution channels, reduces the influence of any 'middle-men' between hotels and their customers. This result is aligned with the result from Reino (2009),

which concluded that a booking-enabled hotel Website has a significantly higher contribution on business performance in hotel establishment.

Both Business Administration Systems and Business Intelligence Systems are significantly related to the marketing performance ($r = 0.61$ and 0.62 respectively, $p< 0.05$). Within these two categories, the most related systems to marketing performance are the sales and marketing analysis system, the accounts receivable systems, and the human resources management systems (HRS) (refer to Figure 6.22). This result supports previous literature, which has suggested that this kind of system significantly contributes to the hotel performance (e.g. Ham et al. 2005; Reino 2009). However, these two categories are only related to the non-financial aspect of marketing performance (e.g. customer loyalty and satisfaction) and they seem to not affect the financial measures (e.g. profit). This result may be due the time-lag between adopting ICT systems and receiving the financial returns from such adoption (e.g. Bilgihan et al. 2011).

The results from this study reveal that the number of ICT systems designed to improve guest services have the lowest relationship with marketing performance. This effect becomes bigger when these systems are interconnected with other software such as a property management system or an energy management system. Within this category, using the guest-operated heating/ cooling control switch is the most related technology with marketing performance. However, many other systems in this category do not show any significant influence upon marketing performance (e.g. in-room sensor motion energy switch). Moreover, this category is not significantly related to the financial metrics of marketing performance. These results are not aligned with previous literature, which suggests a significant influence of such technologies on hotel performance (e.g. Siguaw et al. 2000; Lee et al. 2003; Sigala 2003; Ham et al. 2005; Reino 2009). The explanation of these results may rests on the fact that most of these technologies are becoming mandatory requirements in hotels rather than a way of differentiation. In this context, Ruiz-Molina et al. (2011) found that there are some ICT systems for which there were no significant differences between the hotels in different categories. This suggests that this kind of technology is essential in providing service within the context of hotels with three-star rating and above. However, it should be noted that some of these technologies (e.g. in-room printing facilities) are available in a limited number of the surveyed hotels; consequently, the results of the correlations between such technologies and the marketing performance may be misleading and should be used with caution.

Although there are a number of studies suggest significant impacts of social media on marketing performance (e.g. Mangold and Faulds 2009), the results from this research indicate that the number of social media platforms adopted by a hotel has no significant relationship with the marketing performance within the hospitality industry in Jordan. This result suggests that Jordanian hotels do not make use of different social media platforms as a marketing tool. This may be due to the fact that the way of individual use this source of marketing information varies according to their preferences, the stage of their purchases and the purpose of their travel (Dev et al. 2010; Verma et al. 2012). In order to search for information or obtain recommendations, customers may refer to social media platforms, which are managed by their own selves or by third parties rather than referring to social media profiles which are managed by the hotels. Therefore, Jordanian hotels may consider social media as a customer costumer communication channel rather than a business to costumer channel. However, it should be noted that only the availability of the most common social media were assessed in the survey; respondents were asked only if they had an active profile on particular social media platforms. The real purposes of adopting social media and their features were not examined. This subject needs more investigations and may be a topic of a further research.

From the view of the hotel managers, when the results of the analysis are examined, the volumes of hardware networking platforms are a significant factor of marketing performance. This result corresponds with Reino's (2009) study that shows the importance of most hardware platforms (e.g. desktop PC) in forming the high level of hotel performance. In the same study, the author argues that most general networking infrastructure (e.g. broadband) is considered to make a significant contribution to business performance (Reino 2009; Ip et al. 2011). As a key point in the hotel business, the using of PCs, Broadband Internet and business eMail are significant to marketing performance. However, the usage level of ICT hardware and networking infrastructure is only related to the non-financial aspect of marketing performance (e.g. customer loyalty and satisfaction) and they seem to be not affecting the financial measures (e.g. profit). This result may be due to the time-lag between investing in ICT hardware and networking infrastructures on the one hand and receiving the financial returns from investing on the other hand (e.g. Bilgihan et al. 2011). Moreover, the volume of hardware and networking infrastructure affects 'invention measures' more than other measures of marketing performance. This finding demonstrates that having more hardware and networking platforms may lead to higher capabilities of adopting new ICT software and therefore launching new products and services.

When considering the relationship between the overall ICT adoption and hotel marketing performance, ICT adoption exhibit a significant positive relationship with the non-financial aspects of marketing performance only. Data analysis does not show a significant relationship between the overall ICT adoption and the financial marketing metrics. This result does not align with previous literature that suggests a positive relationship between ICT and the financial performance within the hospitality industry (e.g. Law et al. 2009). This result may be due to the fact that the relationship between ICT investments and firms' financial performance is complex and multifaceted (Scholochow et al. 2010; Ruiz-Molina et al. 2011). As an example, Ruiz-Molina et al. (2011) have argued that the impact of fluctuations over time and the diverse methods of financing and measuring ICT expenditures are key problems for determining the financial outcomes of ICT.

The market measures of marketing performance (e.g. hotel market share compared with the main competitors) relate positively to ICT adoption. All the investigated ICT systems, excluding social media, have a significant correlation with market measure. The most ICT systems that influence market measures are Business Administration Systems followed by Hotel Front-Office Systems (HFOS). Similarly, marketing metrics that relate to the customer (e.g. customer loyalty and customer satisfaction) are significantly influenced by the overall level of ICT adoption. Alongside with the adoption of social media, it is surprising to find that Guest Service Systems have no correlation with 'Customer Measures' of marketing performance. This result suggests that Jordanian hotels do not use this type of ICT system in way that achieves uniqueness in customer service and therefore a competitive advantage. However, this result may have emerged because this research reflected the perspective of hotel managers rather than that of customers.

This empirical study affirms that invention measures of marketing performance (e.g. the ability to launch new products and service) are the largest marketing aspects that are driven by ICT adoption toward effective marketing performance. Implementing new and more integrated ICT systems allows hotels to improve their efficiency. This result supports Buhalis and Law's (2008) claim that ICT adoption by hotels can re-engineer their strategies towards their innovation and competitiveness.

Moreover, the overall findings of the regression analysis of ICT adoption display that the overall level of ICT integration records an overall positive impact upon marketing performance over the level of ICT availability. Thus, we can conclude that although the availability of different ICT systems has a significant positive relationship with hotel marketing performance, having the interconnected versions of these systems markedly

influences marketing performance. This result aligns with previous literature, which emphasised the importance of ICT integration for hotel performance (e.g. Sigala 2003; Singh et al. 2006; Reino 2009). For example, Šerić and Gil-Saura (2011) argue that a single marketing communication tool cannot achieve marketing communication purposes by itself; however, the integration among these systems can achieve these purposes.

Finally, the intensity of ICT usage demonstrates a positive relationship with marketing performance in Jordanian hotels. This result indicates that using ICT systems to support more function and service leads to an improved marketing performance within the hospitality industry. This finding supports previous literature that claims that a positive relationship exists between the intensity of ICT usage and hotel performance (e.g. Siguaw et al. 2000; Sigala 2003; Ham et al. 2005; Law and Jogaratnam 2005; Singah et al. 2006; Sirirak et al. 2011).

7.6 Major Findings

In this section, the major finding and the results of hypotheses testing are presented according to the research questions.

7.6.1 Research Question 1

"What is the level of ICT usage by Jordanian hotels?"

The descriptive quantitative results of the study (Figures 6.3-6.12 and Tables 6.7-6.12) show that the majority of Jordanian hotels have a high level of ICT adoption. However, the integrated (i.e. interconnectivity) level and the usage level of ICT are less than the level of ICT availability. Moreover, ICT availability, interconnectivity and usage vary across these hotels. In order to test the first hypothesis of the thesis, i.e. 'the level of ICT usage by Jordanian upscale hotels is influenced by their characteristics,' several statistical tests were employed to measure whether hotel characteristics, guests' demographic and respondents' profile have any influence upon the level of ICT usage.

This study found that larger Jordanian hotels implemented more ICT than did smaller hotels, thus supporting the assertion that larger hotels have a heavier reliance on ICT. This study, also, revealed that the commitment to use ICT in Jordanian hotels was greater in luxury five-star hotels and upscale four-star hotels and was lower in mid-price three-star hotels. In

Jordan, company-owned hotels have not chosen to use ICT to differentiate themselves from sole-owned ones, nor have chain-hotels used ICT to distinguish themselves from independent ones. Moreover, hotel age and location have no influence upon the level of ICT adoption.

It is very clear from Table 6.18 above that the only demographic category which demonstrates any correlation with ICT use by hotels was that on the percentage of guests who arrive. The other demographic categories did not show statistical significance ($p < 0.05$), meaning that the null hypothesis is accepted (i.e. there was no important significance to demographics of guests upon the level of ICT usage by Jordanian upscale hotels) and the alternative hypothesis is rejected (i.e. the demographics of guests do impact the level of ICT usage). However, the Jordanian hotels should consider the percentage of their guests who arrive as group when designing their ICT systems.

Regarding the relationship between respondents' demographic variables (i.e. respondents' age, duration on job and respondents' experience in ICT) and the propensity of ICT adoption, Table 6.19 reveals that respondents' age and duration on job do not correlate with ICT adoption within Jordanian hotels. However, when considering the respondents' experience we can see a significant statistical relationship with ICT adoption, which means that the null hypothesis is rejected (i.e. there was no important significance to respondents' experience in ICT upon the level of ICT usage by Jordanian upscale hotels) and the alternative hypothesis is accepted (i.e. respondents' experience in ICT do impact the level of ICT usage).

The research indicates that Jordanian hotels which are more motivated in adopting different ICT system are those that;

- cater for high volume of guests, especially, who arrive as groups;
- are very large in terms of number of employees and rooms;
- have a wide scope of facilities,
- are of a higher star-rating (i.e. grade); and
- their management have a higher technical-skilled.

7.6.2 Research Question 2

"What is the level of marketing performance of Jordanian hotels?"

This study suggests that the majority of Jordanian hotels have a high level of satisfaction with their marketing performance. However, as Table 6.27 shows there are some differences in each category of marketing performance. Financial measure of marketing performance acquired the highest level of satisfaction and the invention measures of marketing performance were the lowest. Table 6.28 shows the correlation analyses among marketing performance measurement. Excluding the finical measures, the results from the research support previous studies that supported a high correlation between marketing performance measurements.

In Jordan, larger and higher grade hotels are satisfied more with their marketing performance than did smaller and lower hotels. This study found that there is no significant difference with marketing performance between company-owned hotels and sole-owned ones or between chain-hotels and independent-hotels. Hotel age and location have no influence upon the level of ICT adoption.

Table 6.34 above show that five out of seven demographic categories of hotel guests have correlation with marketing performance, meaning that the null hypothesis is rejected (i.e. there was no important significance to demographics of guests upon the level of marketing performance of Jordanian hotels) and the alternative hypothesis is accepted (i.e. the demographics of guests do impact the level of marketing performance).

7.6.3 Research Question 3

"How ICT usages effect the marketing performance of Jordanian hotels?"

This study argued that ICT adoption has a positive relationship with marketing performance ($r = 0.66$, $p < 0.001$). This result supports previous studies that supported a high correlation between ICT and hotel productivity. However, as Figures 6.22 show, the correlation between each ICT system and marketing performance is varying. EBOS, Website, Broadband Internet and business eMail account are common ICT solutions that have high positive correlation with marketing performance. Table 6.36 and Table 6.37 show the correlation and regression analyses between ICT categories and marketing performance. As expected in this study, both Front-Office System and Electronic Distributions System are strongly and positively related

to marketing performance (i.e. the financial and non-financial measure). Furthermore, the findings from this study show that hardware and the general network infrastructure as well as the technologies designed to support hotel back-office (i.e. Business Administration Systems and Business Intelligence Systems, are positively related to the non-financial measures of marketing performance. However, the adoption of social media does not have any significant relationship with marketing performance may be because Jordanian hotels do not use these platforms efficiently to support their marketing activities. The findings from this study expose that the technologies that adopted by Jordanian hotels to improve guest services, such as in-room Internet access and Self-Service Kiosks, while frequently touted, are not significantly correlated with 'Costumer Measures' of marketing performance (e.g. Customer purchase intention) as well as with the 'Financial Measures' (e.g. turnover).

With regard to the integrated (i.e. interconnectivity) level, this study has revealed that interconnectivity is significantly and positively related to marketing performance; more specifically, marketing performance have higher positive relationship with ICT interconnectivity ($r = 0.71$, $p < 0.05$) than with ICT availability ($r = 0.53$, $p < 0.01$). This empirical research, also emphasises the intensity of ICT usage has a significant, positive relationship with all measures of marketing performance.

It is very clear from Table 6.38 above that only Front-Office Systems and Electronic Distribution Systems have a significant influence on the financial measure of marketing performance. This result reflects that well-managed hotels tend to have both booking systems and effective marketing strategy in the financial side. Five of seven ICT systems do not show any significant influence on the 'Financial Measure' ($p < 0.05$) which means that the null hypothesis ($H3a_0$) is accepted (i.e. there was no important significance to ICT adoption by Jordanian hotels upon the financial dimension of their marketing performance) and the alternative hypothesis ($H3a_1$) is rejected (i.e. the ICT adoption do impact the financial dimension of their marketing performance). Table 6.39 and Table 6.40 show that most of the investigated ICT systems have a significant influence on all the non-financial measures of marketing performance (i.e. Market Measures, Customer Measures and Invention Measures). Thus, null hypotheses ($H3b_0$, $H3c_0$ and $H3d_0$) are rejected (i.e. there was no important significance to ICT adoption by Jordanian hotels upon non-financial dimension of their marketing performance) and the alternative hypothesis ($H3b_1$, $H3c_1$ and $H3d_1$) are accepted (i.e. the ICT adoption do impact non-financial dimensions of their marketing performance).

The research indicates that Jordanian hotels have higher marketing performance if adopt ICT systems as follow;

- having a wide scope of ICT systems, especially, hardware;
- having a high level of integration among ICT systems;
- adopting a Website, Broadband Internet and business eMail account;
- significantly use ICT systems to support their front-office service; and
- depending more in the electronic distribution especially through their own Websites.

7.7 Research Objectives

The first objective of this thesis was "to establish the research nomenclatures and boundaries". These nomenclatures and boundaries were essential to this thesis since they provided the research with reduce time, cost and efforts and made the research possible to be accomplished. This objective was developed after a review of the literature surrounding ICT and MPM in the hospitality and was fulfilled by when the focus of the research was shaped. Chapter one introduces the research area and the key nomenclatures shaping the research area. Chapter two presents the context of the research, i.e. upscale hotels in Jordan as developing country.

The second objective of this thesis was "to examine the literature on the topic of ICT and MPM in the hospitality industry, as well as the literature regarding the Jordanian hospitality industry". This objective was achieved in chapter three. Chapter three considered the literature on marketing performance in the hospitality industry. A discussion on the unique nature of hospitality marketing was important since evaluating marketing in this sector should consider the differences between marketing in the hospitality industry and marketing in other industries. Chapter three, furthermore, considered ICT and its current applications in the hospitality industry. It discussed the effects and the opportunities for using ICT in hotel establishments and demonstrated how ICT can impact marketing in general. Some specific ICT-based applications/tools that can be utilised in hotels for these opportunities were also identified in this chapter.

The third objective of this thesis was "to create a framework for data collection and analysis". This objective was developed after a careful review of conceptual frameworks proposed in the literature for measuring ICT capabilities as well as measuring marketing performance within the hospitality industry. Chapter four provides the theoretical foundation for this research by presenting a conceptual analysis of ICT systems in hospitality industry

(based on Reino's (2009) model). With regards to the marketing performance measurement (MPM), chapter three focused on the main debates within its theoretical background and the current metrics and approaches used in to evaluate marketing performance generally and particularly in hospitality marketing. This chapter was essential to this thesis since it provided the research with a theoretical analysis of MPM models, especially the model developed by and Ambler and Kokkinaki (2002). This chapter is integral to this thesis since they provided the research with its theoretical background. Moreover, examining the literature surrounding both ICT and MPM helped the researcher in identifying the noteworthy areas of empirical research.

The third objective of this thesis was "to construct a methodology for investigating the relationship between ICT usage and the marketing performance of Jordanian hotels". This objective was developed after an extensive review of the literature surrounding ICT and marketing performance measurements in the hospitality. An online self-completion questionnaire was the research tool for primary data collection. This instrument was developed depending on previous research on ICT usage within the hospitality industry from Reino's (2009) framework for 'eTourism Capability' and relative marketing performance measuring from the model 'Simple Marketing Cash Flow' by Ambler and Kokkinaki (2000). Section 5.6 in Chapter five presents the design of the research instrument. The quantitative survey method using structured, closed item questions was the main method applied to test the model (see Figure 4.4, p.118) and all of the hypotheses (HI- H3), and to provide answers to Research Questions 1, 2 and 3. Chapter five presents the research methods and methodology as well as the procedures that were taken to address the research design, data collection and analysis. Chapter five also, illustrates the issues that lead to select the methods for exploring the factors determining ICT adoption by Jordanian hotels as well as the relationship between ICT adoption and marketing performance of these hotels. Section 7.2 above discusses the quality of the selected research methods in light of the relevant research questions, research objectives and the research framework.

Fifth objective of this thesis was "to identify the views of Jordanian hotel stakeholders on ICT usage and marketing effectiveness criteria". This objective was achieved through undertaking a quantitative investigation of 112 Jordanian hotels with 3-, 4-, and 5-satr rating in Amman, Petra, Aqaba and the Dead Sea over the time period July to September 2012. The senior managers including managing directors, general managers or marketing directors of the hotels, who made the decisions regarding the hotel marketing activities, were selected to complete the questionnaire. The respondents were asked to provide details about the

availability, interconnectivity and usage intensity of several ICT solutions. The respondents were, also, asked to rate their satisfaction about 12 selected marketing metrics. Chapter six reports the analysis of data obtained from this survey. In particular, the descriptive data analysis (e.g. percentages and frequencies) were the main techniques to achieve this objective. By achieving this objective, research questions (Q1 and Q2) were answered and research hypothesis (H1 and H2) were tested. Moreover, by achieving this objective, both the first research aim (i.e. to analyse the extent of ICT usage in Jordanian hotels) and the second research aim (i.e. to assess the level of marketing performance in Jordanian hotels) were also reached. Sections 7.3 and 7.4 above, discuss the result in more details.

The final objective of this thesis was "to detect the main trends in the relationship between ICT usage and marketing performance in Jordanian hotels depending on the primary data analysis". This objective was achieved depending on the primary data analysis. Chapter six reports the analysis of data regarding relationships between ICT and marketing performance. In particular, these relationships were examined through a combination of tests of significance, including Mann-Whitney U test, t-test, Kruskal-Wallis test, Chi-square test and Spearman's rho correlation. By achieving this objective, research question (Q3) was answered and research hypothesis (H3) was tested. Moreover, by achieving this objective, the third research aim (i.e. to investigate the relationship between ICT usage and the marketing performance of Jordanian hotels) was also reached. Sections 7.5 discuss the relationships between ICT adoption and marketing performance in more details.

Chapter 8: Conclusions and Recommendations

8.1 Introduction

Having argued in the previous chapter the main trends in the relationship between ICT usage and marketing performance in Jordanian hotels depending on the primary data analysis, this chapter is to present the final conclusions of the research findings. Therefore, this chapter continues the previous chapter in addressing the last objective of this research (i.e. to detect the main trends in the relationship between ICT usage and marketing performance in Jordanian hotels depending on the primary data analysis).

This chapter summarises major conclusions which reaffirm the thesis statement, discus the issues, and reach the final judgment. The conclusions of a research thesis are significant for forecasting future trends, and the need for further research. This chapter also provides recommendations for improving the adoption of ICT systems in hotels to increase their marketing performance. Furthermore, this chapter highlights the main contributions of the research in terms of theory, methodology, literature and practice. It also highlights the limitations that emerged while conducting this study, and suggests some directions for further research.

This first section of this chapter (section 8.2) provides the conclusions derived from this research. The recommendations of the research are given in section 8.3. The contributions of the research in terms of theory, methodology, literature and practice are demonstrated in section 8.4. The next section 8.5 discusses the study's limitations, and directions for future research are suggested in section 8.6.

8.2 Research Conclusions

As the hospitality sector is a central part of Jordan’s tourism industry, the marketing performance of hotels has a significant impact on Jordan's overall attractiveness as a tourist destination. The hospitality industry is becoming highly competitive and it is necessary for hotels to employ ICT solutions to enhance marketing performance. The success of any organisation, including hotels is increasingly depending on the right use of ICT in order to satisfy customers and meet their needs. This leads to the conviction that the effective use of ICT solutions in the field of marketing is significant. The research is intended to assess the impact of ICT adoption on Jordanian hotel marketing performance in terms of financial and

non-financial measures. This research is relevant to the requirements of the Jordanian hotel industry by helping managers to better understand what the effects of deferent ICT solutions have on marketing performance, and hence to consider ICT adoption strategies that help improving their marketing performance. This research attempts to help the hotel marketers and managers to improve their ICT strategies in their business activities to achieve marketing goals.

The literature suggests that the development of ICT proposes competitive advantages such as, enhanced revenue generation and improved employee productivity, and advance communication channels. The Internet and the ecommerce have dramatically changed the entire hospitality industry while playing a vital role in promoting, building and integrating brand loyalty in tourism. The revolution of ICT brought also some challenges which influence at both microeconomic and macroeconomic environment levels. These include insecurity of personal information, lack of trust on online services, and poor knowledge of its operation. Some of the key barriers that delay adopting ICT services may include high implementation cost, lack of awareness, and limited infrastructure facilities.

ICT have become one of the key factors that hospitality companies rely on to strengthen their competitiveness. This research focuses on several ICT systems used by hospitality establishments, all of which have been universally cited in the literature (e.g. Sigala 2003; Reion 2009; Sirirak et al. 2011). However, most of the previous research in this area has focused on ICT in general, or on commonly adopted ICT solutions, e.g., the Internet. Moreover, there are few studies related to ICT adoption in developing countries hotels. Thus, this research focuses on assessing the availability of a wide range of ICT applications as well as the integrated level of these systems and the 'intensity' level of ICT usage.

This research is based on a comprehensive set of criteria, which has been used to evaluate the effectiveness of marketing performance within the hospitality industry. Similarly, there are few empirical studies with focus on measuring marketing performance in hotels in Jordan. Therefore, this research fills a knowledge gap about marketing performance measurement in Jordanian hotels, by using a model that incorporates these dimensions and criteria into a comprehensive evaluation framework.

The findings of the research indicate that there is a high level of ICT adoption by Jordanian hotels in general. Some basic ICT solutions have been implemented by most hotels, regardless of their star-rating (e.g. eMail and the Internet). Other ICT solutions however, differentiate among hotels with different star-ratings. Furthermore, three and four-star hotels have a strong desire to imitate the ICT solutions of five-star hotels. This evidence is best

explained by the strong rivalry and the hypercompetitive environment of the hotel industry in Jordan. This research provides the opportunity to invalidate the notion that Jordanian upscale hotels are operating at basic business levels. This discovery would be a good incidental of the further research.

The findings of the research include number of factors which can be recognised behind the immense growth of the level of ICT adoption and marketing performance. These factors would be valuable for the hospitality industry policy makers and the stakeholders to design innovative ICT adoption to increase the marketing performance. The size of the establishment, star rating, and management experience in ICT are equally important factors affecting ICT adoption and marketing performance in hospitality industry. However, most Jordanian hotels in the main attractions sites may not respond to concerns about their locations may be due the high attractiveness of their destinations.

This study aims to examine the relationship between ICT usage and the marketing performance of Jordanian hotels. In general, there is a relationship between the use of ICT and the non-financial aspects of marketing performance, which in turn affects the financial outcomes of marketing performance. However, may be because of the time gap between investments in ICT and the returns from such investments, an explicit relationship between some of ICT solutions and financial side of marketing performance did not emerge in this research. Furthermore, this research stands at the forefront to identify and quantify ICT tools in hotels in Jordan as a developing country. However, the findings from this research support the presumption that the nature of the hospitality industry in Jordan, as well as its attitudes towards ICT, resembles the situation elsewhere in the world. Research findings suggest that the Jordanian hospitality industry has followed a similar pattern in the utilisation of ICT solutions as Europe and America. Therefore, generalising the findings beyond the Jordanian case would be valid.

8.3 Research Recommendations

The recommendations for practice could be realised through the findings of the research, with the main beneficiaries being hotel administrators. The research offers the opportunity to ascertain critical information on the hotel service which provides the greatest benefit on marketing performance, as well as the ICT adoption with the greatest influence on marketing performance. These findings can assist policy-makers at the national level and marketing personnel at the firm level in formulating optimal ICT strategies to improve the Jordanian hotel industry. After careful consideration, the research further makes recommendations to upscale hotel operators, the Jordan Tourism Board (JTB) and policy makers on the use of ICT for better marketing performance in the hospitality industry. This research will benefit the hotel industry by providing critical information for management when deciding on the adoption areas of ICT necessary to enhance its marketing performance. To ensure that hospitality managers are fully aware of the ICT, Law et al. (2013) suggested that hospitality researchers should be obliged to keep managers informed about successful business strategies relating to ICT.

From a managerial perspective, the findings of this study validate that ICT adoption is a success factor for marketing performance that hotels in Jordan should improve their marketing performance through the adoption of different ICT systems. The findings, however, showed that ICT was acquired at different rates. Hotels mainly implemented a piecemeal approach to ICT investment, which may affect their ability to improve marketing performance. The JTB should organise seminars and workshops at least annually on the use and importance of ICT not only the upscale hotels but the hospitality industries as a whole.

The selection of right ICT tool is crucial to match service dimensions with the customer requirements. This research provides knowledge based on the important of ICT applications used in hotel that can help managers to arrange which system that needs to be emphasised. The findings showed that the usage of ICT application in front-office and for distribution is crucial for marketing performance. If hotel management emphasises the financial aspect, they may decide to intensify the usage level of the ICT systems in Electronic Distribution Systems and HFOS. Frontline service managers may realise that the benefits of using HFOS would lead to better marketing performance since it is the first thing that represents the service of the hotel to the customer. This in turn will improve customer satisfaction and financial outcomes. Upscale hotels should promote and encourage the use of ICT in their front-office and distribution operations. It is also important to have a booking-enabled

Website in order to achieve a higher-level marketing performance especially in the financial aspect. Upscale hotels should encourage their guests to use the Internet to make reservations.

In order to enhance market share and customer satisfaction, Jordanian hotels may have to increase the availability of the ICT components enhancing the integration of ICT systems, as well as emphasising the intensity of usage of these components. Merely having ICT components may not be sufficient to improve marketing performance. The interconnectivity level and 'intensity' of use of the available ICT is required to achieve this. Therefore, investing in networking and integrated ICT systems and training in ICT usage are important.

The results showing a positive relationship between ICT interconnectivity and innovation outcomes of marketing performance indicated that successful ICT integration enhances innovation of products or services. ICT systems integration provides a powerful tool that brings advantage in promoting and strengthening the hospitality industry. Thus, the positive relationship between ICT adoption and innovation could encourage practitioners and managers to enhance the level of ICT interconnectivity and implementation in order to improve innovation. It is essential that the current ICT systems should be upgraded, updated and seamless integration both externally and internally should be done to improve the hospitality business operations. The integration of ICT in the hospitality business would benefit both, customers and service providers bringing together other stakeholders as well, on a common platform. Moreover, JTB should sensitise upscale hotels in Jordan on the importance of networking the operations of the hotel using ICT. Policy makers in the tourism industry should make sure that all upscale hotels in Jordan use ICT to network all their branches across the country.

This research analyses the impact of selected internal and external factors on ICT adoption by Jordanian hotels. The results of the research indicate a high positive impact for the hotel size on ICT adoption. Thus, big-size hotels with a large number of visitors are more likely to adopt new ICT systems. Hence, when new technologies are launched in the hotel industry, it is advisable to target big-size hotels. Since the usage of ICT applications were significant in five-star hotels, the three and four-star might also apply the same technology applications in order to improve their hotels' performance.

Regarding marketing performance models, the findings from this research can help hotel managers evaluate and compare their property with the competitors regarding their marketing performance as well as it can help them to employ the marketing evaluation strategies in order to improve the competitiveness of their property and become more active players in the tourism market. Given the increasing influence of online hotel reviews on

travellers' decisions (Buhalis and Mamalakis 2015; De Ascaniis et al. 2015), hotels need to develop management strategies, in order to monitor their business' online reputation and to take advantage of customers' comments.

Moreover, the model of 'marketing effectiveness' by Ambler and Kokkinaki (2002) including both financial metrics and non-financial metrics has showed validity and reliability for Jordanian three-five star hotels. The managers of these hotels can use this model to assess the level of marketing performance in their establishments and to identify problem areas that should be improved. The proper design and handling of this model will not only contribute to strengthen accountability of marketing performance, but will also allow a better understanding of the issues underlying this function. As a result, managers might feel more confident in their decision-making. Additionally, it may facilitate the development of a measurement culture and competency within organisations.

8.4 Contributions of the Study

Having identified the number of inadequacies and gaps in the knowledge that clearly need to be addressed (refer to Section 3.8), this study is important from both a theoretical and practical perspective. In summary, this research intends to contribute greater knowledge about the impact of ICT adoption on hotels with respect to their marketing performance. In particular, this research attempts to fill these knowledge gaps to contribute to knowledge for academic researchers as follows;

8.4.1 Contributions to theory

This research has significant contributions in the academic arena. It fills a gap in terms of the requirements for more studies exploring the relationship between ICT adoption and hotel marketing performance and factors influencing this relationship as indicated in the introduction of this research.

The research contributes to knowledge on 'ICT Productivity Paradox' theory in hotel sector. Technological advancements change the hospitality marketing on a regular basis. However, there is limited previous research, which updated the impact of ICT on hotel marketing performance, particularly within developing countries context. Therefore, the research framework, which is based on key models of ICT assessment and the most cited marketing metrics within the hospitality context, adds to the academic pool of knowledge.

This research supports the 'Contingency Theory', which proposes that there is no comprehensive ICT system that is appropriate to all establishments in all environments. The findings from this research indicate that hotels with different characteristics adopt different ICT systems. Most of the previous literature studied ICT from the financial side, the availability or usage of limited number of ICT solutions. This research contributes to the understanding of ICT systems availability, integration and extensity of usage by hospitality organisations and addresses the call for more theoretical discussion to better examine the ICT adoption by hospitality organisations.

For academics, this thesis has contributed to the theory of 'Marketing Productivity Analysis' by using a model of marketing effectiveness to evaluate the impact of ICT adoption on marketing performance within Jordanian hospitality industry. This has not been done previously. The author hopes this will motivate future research on the antecedents and consequences of ICT adoption on marketing performance of hotel establishments. In order to contribute further to knowledge regarding market performance measurement, this study first

validated Ambler and Kokkinaki's (2002) model in the hospitality context, in this case the Jordanian hotel industry, based upon data obtained from marketing decision makers at the top level. Although the model was originally developed in the West, the findings suggest that the model appears to adequately capture the aspects of market performance in the Jordanian hotel industry. It may be concluded confidently that Ambler and Kokkinaki's (2002) model of ''Marketing Productivity Analysis' is a valid and reliable scale that can be used across a variety of companies, industries and cultures.

8.4.2 Contributions to the literature

This research contributes to the literature in three ways. Firstly, this research reviews the literature and presents detailed view of marketing performance in general and in marketing metrics in particular. This research contributes to the marketing literature by organising a literature review on marketing performance measurement in a way that allows identifying research opportunities related to this topic that may stimulate debate and future research. Most of the literature on evaluating marketing performance within hospitality firms focuses on individual metrics (e.g. Customer Satisfaction) not on integrated models of marketing performance. This research adopted a model that evaluates the multi-dimensions aspects of marketing performance.

Secondly, this research updates the contemporary literature on ICT systems used within the hospitality industry. This research intended to contribute on literature on ICT contents analysis in the hospitality sector, providing a comprehensive and updated framework to asses ICT availability, integration and usage intensity. Moreover, available studies are mostly in the context of developed countries. This study is from the developing country's context (i.e. Jordan) and thus, helps to foster an understanding of the topic from a different context.

Finally, but no less important, this research identifies the relationships between ICT systems and marketing performance as well as the factors that may affect these relationships. This research empirically confirms the existence of a positive association between some ICT systems and marketing performance. This will provide a base for further studies that investigate these relationships in different contexts. Furthermore, the current research contributes to the literature on the influence of hotel features on ICT and marketing performance by examining various features among the selected hotels.

8.4.3 Contributions to methodology

This research has added value for the hotel sector both for academics and professionals, and for other sectors in general, by developing and implementing an appropriate methodology in a developing country context, demonstrating that ICT systems can improve marketing performance. In this sense, the inconsistent and contradictory results from previous studies may be the result of methodological problems that this study was intended to overcome.

This research contributes to methodology of investigating the contribution of ICT to performance by applying Reino's (2009) framework to a new body of data. This research validated Reino's (2002) framework in investigating ICT contribution to marketing performance specifically instead of ICT contribution to business performance in general. It also fills a gap in terms of the requirements for studies with different contexts. This research not only illustrates the influence of ICT systems in achieving higher levels of marketing performance, but also has touched on other specific issues related to ICT adoption that must be taken into account so that the benefits of ICT can experienced.

8.4.4 Contributions to practise

This research practically tested a marketing performance assessment model within the context of the hospitality industry. It also validated the Ambler and Kokkinaki's (2002) model of 'marketing effectiveness' in the hotel industry and in the context of developing country. It is hoped that this contribution may encourage research, particularly in terms of testing other models of marketing performance measurement on the ground. This will provide guidelines for marketing managers and practitioners in hotels on how to build robust measures for marketing performance.

By showing the relationships between each ICT systems and marketing performance, this research may contribute to practise of the selection of the right ICT investment to improve marketing performance. This research has identified that their some potential ICT systems for improving marketing performance. This may encourage hotel management to explore better ways to invest their money in ICT systems and can assist decision-making in the tourism industry about the restructuring of ICT strategies in hotels. The research results also contributed to the development of an approach to the management of ICT, which in turn raises other issues to consider in future research, while providing empirical evidence on critical issues relating to ICT adoption in order improve organisational performance.

8.5 Research Limitations

As with any piece of work, this study is subject to several limitations and constraints attributable to time, place and resource boundaries. These limitations may impinge on the instrument design, data collection technique, as well as the generalisation. These limitations may include:

Firstly, regarding the literature review, this research includes three large disciplines in the literature; ICT in the hospitality industry, hospitality marketing and marketing performance measurement. Therefore, the literature background is widespread, and it is difficult to bring in every single study in these fields. However, the major principles from the main authors in these areas were included as much as possible within the time limit and other constraints.

Secondly, there was a shortage of relevant studies in the influence of ICT on the marketing performance in the hospitality industry in general and in Jordanian hotels in particular. Although a sufficient body of research has investigated the ICT impact on hotel performance, theories on how ICT impacts the marketing performance in the hospitality discipline were insufficient. Furthermore, there are confined and limited theoretical backgrounds on how to measure marketing performance for hotels. Thus, the researcher built and developed his research framework upon different theoretical backgrounds from other disciplines. More specifically, the MPM scales were adopted from other disciplines, as most MPM scales have previously been applied in the manufacturing context. None of the existing models of MPM is accurate enough at picturing hotels marketing process. The researcher modified a few statements of these MPM scales to be more understandable and applicable in the hotel industry, however these modifications could have influenced the participants' perspectives towards the MPM statements.

Thirdly, based on the scope of the study, the findings must be limited to the Jordanian context. The scope of this study was limited by its population, which only included upscale Jordanian hotels. Both the ICT and MPM scales in this study were adopted from a Western context, and since Western culture is different from Jordanian Arab culture that may restrict the applicability of the questionnaires to Jordanian upscale hotels. Jordan may also be different from Western countries economically, politically and in the degree of industrialisation and computerisation. Therefore, the findings of this research may be slightly different from the findings of similar research studies from other countries. Moreover, as indicated above the survey was distributed to selected hotels (rated a minimum of three

stars). The results may therefore not be representative of all the hotels operating in Jordan. In particular, the targeted population excludes small-sized accommodation.

Fourthly; the findings from this research require caution in terms of extrapolation. The small sample (i.e. 61 hotels) requires caution in terms in particular issue of generalisability, reliability and response bias. In this research, the statistical results from this sample size are acceptable for a survey of businesses in which the respondents are high-level managers. However, as in any empirical study in the social sciences, the context and the sample characteristics impose severe constraints on any extrapolation beyond the sample itself. Future research should consider enlarging the sample in order to validate the proposed framework. Moreover, hotel manager's perspective should be further investigated, in order to better understand hotels' actual ICT strategies and marketing performance.

Fifthly; in order to generate reliable and valid data, the research only used hotel managers, marketing managers or owners as the key informants. However, the challenging point is that MPM was measured from the viewpoint of these informants rather than the hotel costumers. The cross-sectional nature of this paper does not predict how this relationship will change overtime. The results of correlations in this research only support the identification of associations between variables, without inferences on the existence of a cause and effect relationship

Finally; another limitation would be the lack of consideration of how ICT is used as well as the behavioural aspects of management and the influence of those factors on marketing performance. It is also difficult to isolate variables in any social science; therefore this research only points to an association and not causation between independent variables (i.e. ICT and hotel characteristics) and dependent variable (i.e. marketing performance).

8.6 Further Research

This study aims to explore the effect of ICT implementation on the marketing performance. Both the ICT and MPM scales were measured based only on managers' perspectives. Further studies could be conducted by measuring both ICT and MPM from the same sample based on either customers' perspectives or/ and employees' perspectives. This would help more to explore the relationships between ICT and MPM. Other studies could test the relationships between ICT and internal marketing (i.e. productivity and service innovation performance) based on employees' perspectives. Another study could be conducted to measure external customers' satisfaction for ICT adoption from customers' perspectives. Future studies may therefore conduct tourist surveys to determine if a hotel is competitive and can attract and satisfy potential visitors.

Another study could be conducted on mediating relationships between ICT and marketing innovation measures, more specifically to test whether organisational creativity can be a mediator in these relationships. Further research could examine the role of employee attitudes as mediators in the relationships between ICT practices and marketing outcomes. This study used cross-sectional survey methodology and therefore a longitudinal study could prove fruitful for future research, especially in exploring the impact of ICT practices on marketing performance over time.

Furthermore, social media adoption was measured as one dimension; however the researcher found that social media adoption needs to be measured through different facets and not through one item for each facet. Future research could be conducted to social media adoption multidimensionality through facets such as availability and benefits. Social media adoption still requires greater research in the Jordanian hotel industry.

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Appendix I. Information Sheet for Participants

Queen Margaret University

EDINBURGH

My name is Abdullah Al-Adamat and I am a PhD research student from the School of Arts, Social Sciences and Management at Queen Margaret University in Edinburgh. As part of my research studies, I am undertaking a research project for my PhD.

The title of my project is: **The impact of information and communication technology on the marketing performance of Jordanian hotels.**

This study is to explore the link between "technologies" and "marketing performance" within hospitality industry in Jordan. It is looking into what kinds of technologies are provided and used by Jordanian hotels and how the use of these technologies affects the marketing performance of Jordanian hotels.

The findings of the project will be useful because it can help to analyse the level of information and communication technology (ICT) usage in Jordanian hotels. Furthermore, the research can provide recommendations for all Jordanian hotels to improve their marketing effectiveness by using the appropriate technologies in the hospitality industry.

I am looking for managers of Jordanian three, four or five-star hotels to participate in the project. If you agree to participate in the study, you will be asked to complete an on-line questionnaire in your settings (workplace, office) which will last no longer than 20 minutes. The questionnaire starts with general questions and moves on to some specific technology questions related to your business and marketing indicators. The researcher is not aware of any risks associated with taking part in the project. You will be free to withdraw from the study at any stage and you would not have to give a reason.

All data collected in this survey will be held anonymously and securely. No personal or identifier data (e.g. names and postcodes) is asked for or retained. Even the research team cannot link the participants to the information provided. Cookies and personal data stored by your Web browser are not used in this survey. The results will help form the PhD dissertation and also may be published in a journal or presented at a conference.

If you have read and understood this information sheet, any questions you had have been answered, and you would like to be a participant in the study, please now see the consent form.

Name of researcher: Abdullah Al-Adamat

Appendix II. Survey Questionnaire

The impact of information and communication technology on the marketing performance of Jordanian hotels

Welcome

Dear Sir/ Madam

Thank you for participating in and supporting my Ph.D. research, the outcome which I believe will be of great value to the hotel sector in Jordan. Your input will provide an essential data for my study. I am a Jordanian national and I will be conducting my field work in Jordan however my current research base is Queen Margaret University, Edinburgh, UK. The research I am undertaking seeks to explore the link between "technologies" and "marketing performance" and of course all responses are treated in strict confidence although if you wish, the overall (anonymised) findings can be made available to you. The survey should take no more than 30 minutes of your time, it starts with general questions and moves on to some specific technology questions related to your business and marketing indicators. If your business is part of a chain, it would be helpful if separate questionnaires could be completed for each relevant property.

Thank you again for assisting me with this work.

Abdullah Al-Adamat.PhD Researcher.

1 / 20

Part One: General Information

1 Please indicate your role in the business. Note, you must be in a position to understand the overall relevance of ICT to your business from a marketing perspective. Otherwise, this might not be applicable to you!

- Owner
- Managing Director / CEO
- Marketing Manager
- Other

1.a If you selected Other, please specify:

2 In which geographical location is your establishment?

- Amman
- Aqaba
- Dead Sea
- Petra
- Irbid
- Madaba
- Other

2.a If you selected Other, please specify:

3 How many bedrooms does your establishment have?

- 20-79
- 80-139
- 140-199
- 200-259
- 260-319
- 320-379
- 380 or more.

4 Including you, how many full-time employees does your establishment have?

- Less than 25
- 25-49
- 50-74
- 75-99
- 100-124
- 125-149
- More than 149

5 Including you, how many part-time employees does your establishment have?

- Less than 25
- 25-49
- 50-74
- 75-99
- 100-124
- 125-149
- More than 149

6 What is the ownership structure of this establishment?

- Sole Proprietorship
- Partnership
- Limited Partnership
- Corporation (For-Profit)
- Cooperative
- Other

6.a If you selected Other, please specify:

7 What is the management arrangement of this establishment?

- Independent management
- Franchise
- Chain management
- Other

7.a If you selected Other, please specify:

8 How many years has this establishment been offering accommodation under its current ownership

9 Approximately, how many guests did your establishment have last year?

10 Approximately, what percentage of your overall customers are foreign tourists?

11 Please indicate the annual percentage of the following type of your customers during the last year?

	Percentage
Individual	Please select
Couples	Please select
Families	Please select
Groups	Please select

12 Please indicate the annual percentage of total roomnights did each of the following sources represent in your hotel during the last year?

	Percentage
Business travelers	Please select

Leisure travelers	Please select
Conference	Please select
Other	Please select

13 Which of the following additional facilities does your establishment have?

- ☐ Restaurant
- ☐ Spa
- ☐ Gym
- ☐ Conference/ Banqueting Facilities
- ☐ Timeshare Units
- ☐ Other

13.a If you selected Other, please specify:

14 What star rating does your hotel have?

- ○ Three- Star
- ○ Four- Star
- ○ Five- Star
- ○ Other

14.a If you selected Other, please specify:

Part Two: ICT Questionnaire

Please click on the 'More Information' link at the right top of each question to find out more about meanings and definitions of some terms in the question.

15 Do you manage this establishment using a Property Management System (PMS)

- Yes
- No

16 Please state whether your establishment has the following ICT Management Systems and when in place, state whether they are connected to your property Management System (PMS), if you have one.

	Not available	Yes but not connected to PMS	Yes and connected to PMS
EPOS / Restaurant Management System			
Conference / Banqueting Management System			
Leisure Management System			

17 Please state whether your establishment offers room bookings through the following distribution channels and whether they are connected to your property

Management System (PMS), if available.

	Not available	Yes but not connected to PMS	Yes and connected to PMS
Booking through your Website	○	○	○
Booking through Alternative Distribution Systems	○	○	○
Booking through Global Distribution Systems	○	○	○

18 Please state whether the following Systems/Applications listed below are available and whether they are connected to your property Management System (PMS), when available.

	Not available	Yes but not connected to PMS	Yes and connected to PMS
Electronic Door Locking System	○	○	○
In-Room Electronic Minibar	○	○	○
In-Room Internet Free Access	○	○	○
In-Room Internet Paid Access	○	○	○
In-Room Telephone	○	○	○
Do-Not Disturb/ Make-Up-Room Electronic Annunciation	○	○	○
In-Room Printing Facilities	○	○	○

19 Please state whether your establishment has the following controls for energy management at the guest rooms, and if these are connected to an Energy Management System (EMS).

	Not available	Yes but not connected to EMS	Yes and connected to EMS
In-Room thermostat switch	○	○	○
In-Room sensor motion energy switch	○	○	○
Key card energy switch	○	○	○
Guest-Operated heating / cooling control switch	○	○	○

20 Does the In-Room Entertainment System at your establishment (if available) offer the following features?

- ☐ On-Demand Movies
- ☐ On-Demand Games
- ☐ Hotel Information
- ☐ Tourism Information
- ☐ eMail Access
- ☐ Internet Access
- ☐ Posting Messages
- ☐ In-Room Check Out
- ☐ Other

20.a If you selected Other, please specify:

9 / 20

21 Does your establishment have an active profile in the following social media websites? Please list any other social media presence.

- ☐ Facebook
- ☐ Twitter
- ☐ YouTube
- ☐ Flickr
- ☐ MySpace
- ☐ Other

21.a If you selected Other, please specify:

22 Please state whether your establishment has the following ICT Systems and if they are connected to your Property Management System (PMS).

	Not available	Yes but not connected to PMS	Yes and connected to PMS
Customer Relationship Management System	○	○	○
Sales and Marketing Analysis System	○	○	○
Yield Management System	○	○	○
Accounts Receivable System	○	○	○
General Ledger Accounting System	○	○	○

Human Resources System	○	○	○
eProcurement Software	○	○	○
Energy Management system	○	○	○
Work Order Maintenance	○	○	○

23 Please rate the overall usage of the following Hardware System, if available at your establishment. Please tick "Not Available" if this is the case.

	Not Available	Limited Usage	Average Usage	High Usage	Essential
Desktop EPOS	○	○	○	○	○
Hand-Held EPOS	○	○	○	○	○
Self-Service Kiosks	○	○	○	○	○
Laptops	○	○	○	○	○
Hand-held PCs	○	○	○	○	○
Desktop PCs	○	○	○	○	○

24 Please rate the overall relevance of the following General ICT Infrastructure to your business performance, if available at your establishment. Please tick "Not Available" if this is the case.

	Not Available	Limited Usage	Average Usage	High Usage	Essential
Business eMail Account	○	○	○	○	○
Dial-Up Internet Access	○	○	○	○	○
Broadband Internet Access	○	○	○	○	○
Wired Internet Access	○	○	○	○	○

Wireless Internet Access	○	○	○	○	○
Your Company Owned Intranet	○	○	○	○	○
A Website	○	○	○	○	○
Remote Access to your Company Network	○	○	○	○	○
Voice-Over-IP	○	○	○	○	○

25 Please indicate other ICT business solutions that your business has in place and which have not been included above.

Part Three: Marketing Performance Questionnaire

If appropriate, please confer with your marketing manager for additional input in completing this part of the questionnaire

26 Please rate your overall satisfaction with the marketing performance of your establishment on the following areas:

	Completely dissatisfied	Somewhat dissatisfied	Neither satisfied or dissatisfied	Somewhat satisfied	Completely satisfied

Turnover relative to major competitors last year.	○	○	○	○	○
Profits relative to major competitors last year.	○	○	○	○	○
Market share relative to major competitors last year.	○	○	○	○	○
Occupancy rate relative to major competitors last year.	○	○	○	○	○
Service quality relative to major competitors last year.	○	○	○	○	○
New customer gained by your establishment relative to major competitors last year.	○	○	○	○	○
Customer loyalty relative to major competitors last year.	○	○	○	○	○

Customer satisfaction relative to major competitors last year.	○	○	○	○	○
Customer awareness of business brand relative to major competitors last year.	○	○	○	○	○
Customer purchase intention relative to major competitor last year.	○	○	○	○	○
New products / services launched last year relative to major competitors	○	○	○	○	○
Revenue from new products / services as a percentage of total sales relative to major competitors last year.	○	○	○	○	○

Part Four: Demographic Information

27 How many years have you been in this establishment?

- Less than one year
- 1-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- More than 20 years

28 Please rate your expertise from None to Expert on the following areas.

	None	Some	Competent	Expert
General ICT				
General Business ICT				
Industry-Specific ICT				

29 What is your age?

- Less than 25 years
- 26-35 years old
- 36-45 years old
- 46-55 years old
- More than 55 years old

30 Please indicate your gender.

- Male
- Female

15 / 20

31 If you wish to receive a copy of the final findings, please enter your eMail Address.

Thank you

Thank you for completing this survey.

Key for selection options

10 - Approximately, what percentage of your overall customers are foreign tourists?

00%-10%
11%-20%
21%-30%
31%-40%
41%-50%
51%-60%
61%-70%
71%-80%
81%-90%
91%-100%

11.1.a - Percentage

00%-10%
11%-20%
21%-30%
31%-40%
41%-50%
51%-60%
61%-70%
71%-80%
81%-90%
91%-100%

11.2.a - Percentage

00%-10%
11%-20%
21%-30%
31%-40%

41%-50%
51%-60%
61%-70%
71%-80%
81%-90%
91%-100%

11.3.a - Percentage

00%-10%
11%-20%
21%-30%
31%-40%
41%-50%
51%-60%
61%-70%
71%-80%
81%-90%
91%-100%

11.4.a - Percentage

00%-10%
11%-20%
21%-30%
31%-40%
41%-50%
51%-60%
61%-70%
71%-80%
81%-90%
91%-100%

12.1.a - Percentage

00%-10%
11%-20%
21%-30%
31%-40%
41%-50%
51%-60%
61%-70%

71%-80%
81%-90%
91%-100%

12.2.a - Percentage

00%-10%
11%-20%
21%-30%
31%-40%
41%-50%
51%-60%
61%-70%
71%-80%
81%-90%
91%-100%

12.3.a - Percentage

00%-10%
11%-20%
21%-30%
31%-40%
41%-50%
51%-60%
61%-70%
71%-80%
81%-90%
91%-100%

12.4.a - Percentage

00%-10%
11%-20%
21%-30%
31%-40%
41%-50%
51%-60%
61%-70%
71%-80%
81%-90%
91%-100%

Appendix III. Questionnaire Glossary

1. **Account Receivable System:**

Software application especially designed to generate invoice, budget and other financial statements. Such as; Quickbooks, Fidelio and Opera.

2. **Alternative Distribution Systems (ADS)**

This refers to those travel intermediaries, whose main activities are carried out online - such as the online travel agencies expedia.com and activehotel.com.

3. **Broadband Internet Connection**

This refers to any of the high speed Internet connections which might be in place, including both wireless and wired Internet connections. This type of connection enables the simultaneous use of the line for telephone calls.

4. **Central Reservation System (CRS)**

Computerised reservation system shared by several hotels, of the same or different brands. This is the case of those computer reservation systems which can be accessed by several hotels upon agreement.

5. **Conference/Banqueting Management System**

This refers to the software solutions for supporting bookings and the organisation of conferences and/or other events - ranging from managing bookings, storing relevant customer information, supporting the organisation of the room layout and issuing bills. An example of this software solution is Maestro Sales & Catering which can be installed as an independent software or as a modular solution within the Maestro Property Management System.

6. **Customer loyalty:**

Customer loyalty is the feelings or attitudes that incline a customer either to return to a company, shop or outlet to purchase there again, or else to re-purchase a particular product, service or brand.

7. **Customer Relationship Management (CRM)**

This refers to software solutions specially designed to support customer follow up and marketing activities, enabling the easy retrieval of customer information for mailing and in occasions support customisation and loyalty programmes. They can operate independently such as Goldmine, ACT, Microsoft Outlook Business Contact Manager, Siebel, Ephifany and NetCRM; or they can be purchased as a modular solution for the Property Management System, enabling the seamless information flow between systems, such as The Guest Experience module offered by Maestro.

8. **Customer satisfaction:**

The provision of goods or services which fulfil the customer's expectations in terms of quality and service, in relation to price paid.

9. **Destination Management System (DMS)**

This is an IP-based application which - normally run by tourism destination authorities - which displays destination-related information to attract potential visitors - including information related to the tourism infrastructure. Advanced applications will include the possibility to directly place bookings over the Internet and an extranet to enable the direct access by the private sector.

10. **Dial-up Internet Connection for Customers**

This refers to the Internet connection provided to customers which operates using the conventional telephone lines offering a limited bandwidth capacity. This type of Internet connection is charged depending on the time the user spends connected to the Internet. As opposed to the broadband connection, dial-up does not enable the use of the telephone line to connect to the Internet and to make telephone calls simultaneously.

11. **Do-Not-Disturb/Make-Up-Room Electronic Annunciation**

This refers to an electronic device located outside the guest room to display the Do-Not-Disturb/Make-Up-Room annunciation. It can be operated through a one-touch key by the guest or via a small In-Room Sensor Motion. It can also operate as an independent system or being interconnected to the PMS for remote accessibility of room status.

12. **Electronic Data Interchange (EDI)**

A standardised protocol which enables the exchange of data from one to another organisation and between different software applications, automating electronic business processes.

13. **Electronic Document Management System (EDMS)**

This system enables the conversion of physical documents into electronic copies, and supports their reviewing, updating and distribution process. It is especially useful for organisations where large documents are normally in use, for indexing, retrieving, emailing, faxing or printing documents. An example of this software is DataMagine.

14. **Electronic Door Locking System**

Electronic system to generation digitally coded keys for rooms and/or areas within the hotel such as Saflok or Vingcard.

15. **Electronic Minibar**

This refers to the In-Room Minibar facilities which detects the items being removed and automatically posts the charges into the guest's bill. An example of this application is BarTech.

16. **Electronic Point-of-Sale Terminals**

Computerised workstations which are interconnected to the main system of the establishment, enabling the track and storage of customers' information – such as billing and payment data – from the area of the hotel where these terminals are located – e.g. bar and restaurant. Common examples of EPOS would be MICROS e7, Frequent Diner Software or Aloha Tableservice.

17. **Energy Management System**

IT supporting this type of activity is normally named Energy Management System. This is an electronic system which allows the fine management of energy use, such as enabling guests' control of heating in the room, controlling heating via sensors and/or shutting off all the services in the room minutes after the guest has left the room and removed the key from the locker. Some examples include INNCOM e4 or SensorStat DDC. These systems are normally connected to the Property Management System for optimised management.

18. **Enterprise Resource Planning (ERP) software**

ERP is a software system which integrates major business activities of an organisation, including sales & marking, human resources and finance. Common examples of ERP software include PeopleSoft, SAP and Oracle.

19. **eProcurement Software**

This refers to the software applications which enable the automatic online ordering, by providing the direct access of suppliers to the property stock inventories, enabling a two-way real time communication such as those developed by Ariba, Clarus, Commerce One, or i2 Technologies.

20. **Global Distribution System (GDS)**

Networked computerised reservation system accessible by different players of the supply chain. Examples of these systems are Galileo, SABRE or Amadeus.

21. **Guest Operated Heating Control**

This refers to the in-room system which enables guests to control the heating and optimise their use. They can operate as standalone systems or they can be connected to a software solution for centralised energy management - Energy Management System.

22. **General Ledger Accounting System:**

Automated Accounting Systems are organised set of manual and computerised accounting methods, procedures, and controls to gather, record, classify, analyse, summarise, interpret, and present accurate and timely financial data from computerised systems.

23. **General Business ICT**

This refers to applications specifically designed for business usage, such as accountant packages (for example Sage) or procurement software (for example Ariba, Clarus, Commerce One, iPlanet, i2 Technologies).

24. **General ICT**

This refers to applications which have are not only used by businesses but also designed to be used by individuals, such as email or Web Browsers like Microsoft Internet Explorer.

25. **Human Resource Management (HRM) System**

This software enables the easy storage and retrieval of employee data and their job specifications, to support the development of schedules, the identification of training needs and the development of recruitment processes. They can operate independently, or they can be integrated into the Property Management System. Common examples of specific software for human resources are TempoSoft HCM, or Oracle HCM. An example of Property Management System which includes modular solutions for human resources is Micros-Fidelio OPERA.

26. **Industry-Specific ICT**

This refers to applications especially designed for the tourism/accommodation industry, such as Property Management Systems (PMS) (for example Fidelio and Guestmaster), or Global Distribution Systems (for example AMADEUS).

27. **Intranet**

Intranet is an electronic IP-based network which is only accessible by those who are members of an organisation. This network might be also accessible from a remote location, acting as an extranet for the employees of a company.

28. **In-Room Entertainment Systems**

In-room digital TV devices for the guests' which can include other services such as access to their billing information, messages, setting up wake up calls, on demand movies, games, accessing Internet Services and or to hotel/other relevant information. Common examples of this solution are Inncom and Kool-Connect.

29. **In-Room Sensor Motion**

This refers to a sensor system which is located in the guest room to enable lighting and or heating control. These systems can operate as standalone solutions or they can be connected to a software solution for centralised management – Energy Management System.

30. **In-Room Thermostat**

This refers to the temperature control system set up in the room for the automatical optimisation of the room temperature. These systems can operate as standalone solutions or they can be connected to a software solution for centralised management - Energy Management System.

31. **Key-Card Energy Switch**

This refers to the energy control system set up in the room for automatically shutting down the room energy. These systems consist on the Electronic Door Locking System which is in place in the establishment with the advanced feature for energy control

32. **Leisure Management System/Activity Scheduler**

This refers to a software solution for the storage and retrieval of information on leisure areas of the establishment. It normally covers all aspects of running a leisure centre - such as resorts, salons or spas - to manage appointments, sales, memberships and payments. Common examples of this type of applications are RIO spa/Leisure Management Sytem and Cerenity Spa.

33. **Marketing:**

Marketing is the management process responsible for identifying, anticipating and satisfying customer requirements profitably

34. **Market share:**

A company's sales of a given product or set of products to a given set of customers, expressed as a percentage of total sales of all such products to such customers.

35. **Return on Investment (ROI):**

This refers to the value that an organisation derives from investing in a project.

36. **Property Management System (PMS)**

It is also called “Front-Office systems”. PMS refers to a software solution for storage information about advanced reservations, room availability, guest information and payment transactions. Some examples of PMS are Fidelio or Guestmaster.

37. **Remote Access to Company Network**

This refers to the secured access to documents and/or programme files in your company network provided through a Virtual Private Network (VPN).

38. Restaurant Management System

Software applications specially designed for supporting the management of restaurants, are normally named Restaurant Management Systems - some common examples include ReServe Interactive, BPA Restaurant Professional, OpenTable. They can operate independently of interconnected to the Property Management System (PMS) of the establishment. In occasions, they are purchased as a modular solution of the Property Management System, such as the Restaurant Management Solution offered by Micros-fidelio to integrate with their PMS.

39. Sales and Marketing Analysis System

This refers to the software applications with analytic tools for extracting valuable marketing information. In the hospitality sector, they are normally additional modules of the Property Management System, using data from this system to extract sales trends and support decision-making at the management level. An example is the Sales Force Automation offered by Micros-Fidelio.

40. Voice-Over-IP

Voice over Internet Protocol is a protocol for the transmission of voice through the Internet.

41. Work Order Maintenance

This refers to the software solutions specially designed for supporting the generation of reports on required maintenance work, assigning priority to the work, closing orders when completed and notification to the involved departments. They are normally a modular solution of the Property Management System (PMS) in place at the establishment, such as the Work Order System provided by Resource Data Processing Inc.

42. Yield/ Revenue Management Systems

Yield Management or Revenue Management Systems refer to those software applications which enabling price adjustments according to various market factors, as demand or competition for the optimisation of business revenue.

Appendix IV. Ethical Approval Form

For Office Use Only

Ref. Number	
Assigned Reviewers	
Recommendation	
Outcome	

Queen Margaret University

EDINBURGH

APPLICATION FOR ETHICAL APPROVAL FOR A RESEARCH PROJECT 2012/13

This is an application form for ethical approval to undertake a piece of research. Ethical approval must be gained for any piece of research to be undertaken by any student or member of staff of QMU. Approval must also be gained by any external researcher who wishes to use Queen Margaret students or staff as participants in their research.

Please note, before any requests for volunteers can be distributed, through the moderator service, or externally, this form MUST be submitted (completed, with signatures) to the Secretary to the Research Ethics Panel.

You should read QMU's chapter on "Research Ethics: Regulations, Procedures, and Guidelines" before completing the form. This is available at:
http://www.qmu.ac.uk/quality/rs/default.htm
Hard copies are available from the Secretary to the Research Ethics Panel.

The person who completes this form (the applicant) will normally be the Principal Investigator (in the case of staff research) or the student (in the case of student research). In other cases of collaborative research, e.g. an undergraduate group project, one member should be given responsibility for applying for ethical approval. For class exercises involving research, the module coordinator should complete the application and secure approval.

The completed form should be typed rather than handwritten. Electronic signatures should be used and the form should be submitted electronically wherever possible.

Applicant details

1. Researcher's name: **Abdullah Al-Adamat**

2. Researcher's contact email address: AAlAdamat@qmu.ac.uk

3. Category of researcher (please tick and enter title of programme of study as appropriate):

QMU undergraduate student	
Title of programme:	
QMU postgraduate student – taught degree	
Title of programme:	
QMU postgraduate student – research degree	✓
QMU staff member – research degree	
QMU staff member – other research	
Other (please specify)	

4. School: **Arts, Social Sciences and Management**

5. Division: **Consumer Enterprise and Retail**

6. Name of Supervisor or Director of Studies (if applicable): **Andrew Frew**

7. Names and affiliations of all other researcher who will be working on the project:

Research details

8. Title of study: **The impact of information and communication technology on the marketing performance of Jordanian hotels.**

9. Expected start date: **27/9/2011**

10. Expected end date: **26/9/2014**

11. Details of any financial support for the project from outside QMU: **N/A**

12. Please detail the aims and objectives of this study (max. 400 words)

The aims of this study:

1. Analyse the level of information and communication technology (ICT) usage in Jordanian hotels.

2. Assess the level of marketing performance in Jordanian hotels.

3. Investigate the relationship between ICT usage and the marketing performance of Jordanian hotels.

The objectives of this study:

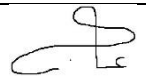
32. Ethical Principles incorporated into the study (*please tick as applicable*):

	Tick as applicable
Will participants be offered a written explanation of the research?	✓
Will participants be offered an oral explanation of the research?	
Will participants sign a consent form?	✓
Will oral consent be obtained from participants?	
Will participants be offered the opportunity to decline to take part?	✓
Will participants be informed that participation is voluntary?	✓
Will participants be offered the opportunity to withdraw at any stage without giving a reason?	✓
Will independent expert advice be available if required?	
Will participants be informed that there may be no benefit to them in taking part?	✓
Will participants be guaranteed confidentiality?	✓
Will participants be guaranteed anonymity?	✓
Will the participant group necessitate a standard or enhanced disclosure check?	
Will the provisions of the Data Protection Act be met?	✓
Has safe data storage been secured?	✓
Will the researcher(s) be free to publish the findings of the research?	✓
If the research involves deception, will an explanation be offered following participation?	
If the research involves questionnaires, will the participants be informed that they may omit items they do not wish to answer?	
If the research involves interviews, will the participants be informed that they do not have to answer questions, and do not have to give an explanation for this?	
Will participants be offered any payment or reward, beyond reimbursement of out-of-pocket expenses?	

33. Risk Assessment

Queen Margaret University
EDINBURGH

Reference:	**Loss of Respondents' Confidentiality**

School / Division:	Arts, Social Sciences an Management/ Consume Enterprise and Retail	**Location:**	QMU Musselburgh, UK And Jordan	**Date**	March 2013
Assessed by:	Abdullah Al-Adamat	**Job Title:**	PhD Student	**Signature**	
Activity / Task:	Questionnaire Survey	**Total Number exposed to risk**	112	**Review Date**	8 January 2013

Ref no.	**Hazards**	**People at risk**					**Likelihood**				**Severity**				**Total risk**	**Existing control measures**	**Adequate controls?**
		Employees and students	**Members of public/visitors**	**Contractors**	**Young people**	**Mothers: new or expectant**	**Improbable**	**Remote**	**Possible**	**Probable**	**No injury**	**Minor**	**Major**	**Fatal**			
1.	Loss of Respondents' Confidentiality during Electronic Questionnaire Survey	✓					✓					✓			L	Password protected email inbox and storage space has been secured.	Yes
						Risk value (RV)	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**			

Total risk = Likelihood (RV) x Severity (RV) *Total risk of 1 – 4 = 'L', low risk* *Total risk of 6 – 9 = 'M', medium risk* *Total risk of 12 – 16 = 'H', high risk*

Declarations

34. Having completed all the relevant items of this form and, if appropriate, having attached the Information Sheet and Consent Form plus any other relevant documentation as indicated below, complete the statement below.

- I have read Queen Margaret University's document on "Research Ethics: Regulations, Procedures, and Guidelines".

- *In my view* this research is:

See Research Ethics Guidelines Section 6	*Please tick*
Non-invasive	✓
Minor invasive using an established procedure at QMU	
Minor invasive using a NEW procedure at QMU	
Major invasive	

- I request Ethical Approval for the research described in this application.

Name *: Abdullah Al-Adamat*

Date 8 January 2013

Documents enclosed with application:

Document	**Enclosed (please tick)**	**Not applicable (please tick)**
Copy of consent form(s)	✓	
Copy of information sheet(s)	✓	
Sample questionnaire (Appendix 1)	✓	
Example interview questions		✓
Copy of proposed recruitment advert(s)		✓
Letters of support from any external organisations involved in the research		✓
Evidence of disclosure check		✓
Division risk assessment documentation		✓
Any other documentation (please detail below)		✓
Risk Assessment	✓	

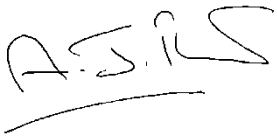
35. If you are a student, show the completed form to your supervisor/Director of Studies and ask them to sign the statement below. If you are a member of staff, sign the statement below yourself.

- I am the supervisor/Director of Studies for this research.
- *In my view* this research is:

See Research Ethics Guidelines Section 6	Please tick
Non-invasive	√
Minor invasive using an established procedure at QMU	
Minor invasive using a NEW procedure at QMU	
Major invasive	

- I have read this application and I approve it.

Name *(if you have an electronic signature please include it here)*



Date 18/1/13

36. For all applicants, send the completed form to your Head of Division or Head of Research Centre or, if you are an external researcher, submit the completed form to the Secretary to the QMU Research Ethics Panel. **You should not proceed with any aspect of your research which involves the use of participants, or the use of data which is not in the public domain, until you have been granted Ethical Approval.**

FOR COMPLETION BY THE HEAD OF DIVISION/HEAD OF RESEARCH CENTRE
Either

I refer this application back to the applicant for the following reason(s):

Name *(if you have an electronic signature please include it here)*

Dr Peter Falconer Reader, School of Arts, Social Sciences and Management

Date 1st February 2013

Appendix V. Jordanian Three, Four and Five-Star Hotels

Five-Star Hotels

No.	Hotel Name	Region	Rooms	Est. Year
1	Amman Marriott Hotel	Amman	293	1982
2	Bristol Amman Hotel	Amman	170	2001
3	Crowne Plaza Amman Hotel	Amman	261	1984
4	Four Seasons Hotel Amman	Amman	192	2003
5	Grand Hyatt Amman Hotel	Amman	361	1999
6	Holiday Inn Amman Hotel	Amman	218	1999
7	Jordan Intercontinental Hotel	Amman	440	1962
8	Kempinski Hotels Amman	Amman	278	2005
9	LandMark Amman Hotel	Amman	260	1976
10	LeMeridien Amman Hotel	Amman	430	1987
11	Le Royal Hotel	Amman	281	2002
12	Sheraton Amman Al Nabil Hotel & Towers	Amman	267	2001
13	The Regency Palace Hotel	Amman	251	1980
14	Intercontenental Aqaba	Aqaba	255	2005
15	Kempinski hotel Aqaba	Aqaba	201	2009
16	Movenpick Resort Tala Bay Aqaba	Aqaba	306	2009
17	Movenpick Resorts / Aqaba	Aqaba	296	2000
18	Radisson Sas Resort / Aqaba	Aqaba	336	2009
19	Holiday Inn Resort Dead Sea	Dead Sea	202	2010
20	Jordan ValleyMarriott Resort & Spa	Dead Sea	251	2003
21	Kempinski Ishtar Resort Hotel & Spa	Dead Sea	333	2006
22	Movenpick Resort & Spa Dead Sea Hotel	Dead Sea	346	1999
23	Taybet Zaman Hotel	Petra	111	1987
24	Crowne Plaza Resort Petra Hotel	Petra	147	1983
25	Grand View Hotel	Petra	133	1994
26	Movenpick Nabatean Castle Hotel	Petra	90	1996
27	Movenpick Resort Petra	Petra	184	1996
28	Petra Marriott Hotel	Petra	100	1996

Four-Star Hotels

No.	Hotel Name	Region	Rooms	Est. Year
1	Acacia Hotel Suites For Business Men	Amman	40	2003
2	Al Qasr Metropole Hotel	Amman	66	1992
3	Amman Cham Palace Hotel	Amman	144	2004
4	Amman International Hotel	Amman	63	1980
5	Amman West Hotel	Amman	51	1999
6	Arena Space Hotel	Amman	148	1997
7	Belle Vue Hotel	Amman	102	2002
8	Century Park	Amman	56	1991
9	Dana Plaza Hotel	Amman	98	1999
10	Days Inn Hotel	Amman	112	2000
11	Geneva Hotel	Amman	121	1996
12	Golden Tulip Airport Amman	Amman	304	1985
13	Grand Palace Hotel	Amman	138	1980
14	Imperial Palace Hotel	Amman	85	1996
15	Jerusalem International Hotel	Amman	173	1995
16	Le Vendome Hotel	Amman	80	2005
17	Quality Suites Hotel	Amman	70	2011
18	Ramada Hotel	Amman	207	1978
19	Sadeen Amman Hotel	Amman	81	2002
20	Zamzam Towers Hotel	Amman	47	2010
21	Aqaba Gulf Hotel	Aqaba	200	1992
22	Marina Plaza Hotel Aqaba	Aqaba	260	2009
23	Dead Sea Spa Hotel	Dead Sea	271	1991
24	Main Janeh Hotel	Madaba	97	1997
25	King‘sWay Hotel	Petra	92	1993
26	Petra Panorama Hotel	Petra	142	1998
27	Petra Rest House	Petra	72	1999

Three-Star Hotels

No.	Hotel Name	Region	Rooms	Est. Year
1	Abjar Hotel	Amman	54	1997
2	Al-Fanar Palace Hotel	Amman	147	2004
3	Al-Liwan Hotel	Amman	56	1996
4	Althuraya Hotel Amman	Amman	45	2009
5	Al-Waleed Hotel	Amman	48	1999
6	Ambassador Hotel	Amman	96	1977
7	Amman inn Hotel	Amman	38	2012
8	Amman Orchida Hotel	Amman	60	1994
9	Arabela Hotel	Amman	36	2009
10	Arena Hotel	Amman	73	1997
11	Canyon Hotel	Amman	29	2012
12	Capri Hotel Suites	Amman	32	1999
13	Comfort Hotel Suites	Amman	21	1995
14	Commodore Hotel	Amman	96	1979
15	Crystal Hotel Suites	Amman	23	1994
16	Darotel Hotel	Amman	38	1985
17	Delmon Hotel Suites	Amman	30	1999
18	Excelencia Hotel Suites	Amman	59	2012
19	Firas Palace Hotel	Amman	80	1996
20	Gardenia Hotel	Amman	45	1997
21	Gulf Hotel Suites	Amman	20	1997
22	Hisham Hotel	Amman	25	1977
23	Ibis Amman Hotel	Amman	158	2010
24	Jordan Clermont Hotel Suites	Amman	22	1998
25	Kindi Suites Hotel	Amman	29	2001
26	Larsa Hotel	Amman	66	1998
27	Maraya Hotel	Amman	62	1998
28	Muo‘ men Hotel Suites	Amman	30	2001
29	Nayrouz Palace Hotel	Amman	55	2011

No.	Hotel Name	Region	Rooms	Est. Year
30	Ocean Hotel	Amman	22	1997
31	Palmyra Hotel	Amman	82	2001
32	Panorama Hotel Suites	Amman	29	2011
33	Rama Hotel	Amman	62	1981
34	Red Rose Hotel	Amman	30	1997
35	Region Hotel	Amman	124	1995
36	Retaj Hotel	Amman	46	2010
37	Samir Amiss Hotel	Amman	49	2007
38	San Rock International Hotel	Amman	105	1978
39	Sandy Palace Hotel	Amman	90	1997
40	Shepherd Hotel	Amman	35	1967
41	Toledo Hotel	Amman	107	1999
42	Tycke Hotel	Amman	60	1978
43	Aquamarina Aqaba (3) Hotel	Aqaba	60	1991
44	Captain Hotel Aqaba	Aqaba	64	2008
45	Coral Bey Hotel Aqaba	Aqaba	69	2005
46	Crystal International Hotel	Aqaba	63	1996
47	Petra International Hotel	Aqaba	63	2009
48	Al-Joude Hotel	Irbid	60	1997
49	Madaba Inn Hotel	Madaba	33	2005
50	Amra Palace International Hotel	Petra	70	1994
51	Candles Hotel	Petra	35	2004
52	Edom Hotel	Petra	110	1995
53	Lamaison Hotel	Petra	76	1996
54	Oscar Hotel	Petra	66	2012
55	Petra Palace Hotel	Petra	150	1990
56	Sella Hotel	Petra	39	1996
57	Silk Road Hotel	Petra	23	1996

Appendix VI. Data Analysis

1. Tests of Normality for the Research Variables

TableVI.1 Tests of Normality for the Research Variables

	Kolmogorov-Smirnov[a]*		Shapiro-Wilk*	
	Statistic	Sig.	Statistic	Sig.
No. of ICT systems available	0.145	0.003	0.911	0.000
No. of interconnected ICT sys.	0.233	0.000	0.880	0.000
The level of ICT usage	0.097	0.200	0.965	0.077
Financial measures	0.255	0.000	0.832	0.000
Market measures	0.160	0.000	0.897	0.000
Customer measures	0.128	0.014	0.931	0.002
Invention measures	0.226	0.000	0.891	0.000
Marketing performance	0.092	0.200	0.961	0.052

a. Lilliefors Significance Correction *df = 61 for all

2. Hotel Size Analysis

The author divided the surveyed hotels into two categories; the 'Small-Size' hotels and the 'Big-Size' hotels depending on the data concerning the number of rooms, the number of full-time employees, the number of guests and the number of the available facilities. The reason to select these data is due to the high correlation between each of these variables (the correlations amongst all hotel characteristics are presented in Table.5, Appendix VI). Table.2 shows the correlation among these characteristics which indicate positive correlations amongst them ranging between (r =0.76 to r =0.61; $p < 0.001$ for all). The high level of correlation amongst these variables can explain these variables in terms of their common underlying dimension (factor). In other words, the data from these variables can be used to generate a new factor, which is related here to the size of the hotel.

In this study, Exploratory Factor Analysis (EFA) was used to generate 'Size' factor from the variables outlined above. There are three main assumptions for supporting the factorability of data. The first assumption is concerning correlation matrix which should show significant

correlations among all variables greater than r =0.30 (Hair et al. 2011). As can be seen in Table.2, this assumption is valid in this study. The second assumption is that the Kasier-Meyer-Olkin test (KMO) should be greater than 0.60. In this study, KMO is around 0.84 which fulfil this assumption. The third assumption is that the Bartlett's Test of Sphericity should be statistically significant at p <0.05 and this was fulfilled in this study (p < 0.001).

Table.2. Correlation amongst Hotel Characteristics Indicating the Size of the Hotel

Correlation	1	2	3
1- Number of bedrooms	1.000		
2- Full-time employees	.755**	1.000	
3- Number of guests	.668**	.728**	1.000
4- Hotel Facilities	.614**	.622**	.632**

**. P < .001

Results from the EFA indicate that there is 82% of total variance of the previous variables explained by one factor (component). Furthermore, the factor loadings which refer to the correlations of variables with the factor were ranging between 0.94 (for the number of full-time employees) to 0.85 (for the number of hotel facilities). However, due to the limitations regarding the observations number, the EFA was only used to generate 'Size' factor in order to correctly divide the surveyed hotels into two categories ('Small-Size' hotels and the 'Big-Size' hotels).

Table.3 Hotel Features based on their Size

	Small-size	Big-size
Number of bedrooms	93	260
Full-time employees	37	107
Number of guests	14900	50600
Hotel Facilities	1.3	3.4

Depending on the 'Size' factor, the author divides the surveyed hotels into the groups; the "Small-Size hotels" which has lower score of the 'Size' factor than the average mean (0.0); and the "Big-Size hotels" which has higher score of the 'Size' factor than the average mean. Table.3

shows the mean average for the previous variables which indicate the size in both 'Small-Size' and the 'Big-Size' hotels. This table reveals that these two categories are well divided and they give sufficient data about the variables indicating size. For example, the average number of bedrooms in small upscale hotels was 93 while it was 260 in big upscale hotels.

3. Final ICT Score Analysis

Moreover, Table.4 presents final score of ICT usage for the surveyed hotels. The highest score of ICT usage found within a single hotel is 160 and the minimum score is 67 while the average score is (101± 25). In order to give this score meaning and make it a more objective measure, the level of ICT usage within each hotel as a percentage was calculated by dividing the final score of ICT usage by the maximum score (160). In other words, the level of ICT usage is related to the highest final score of ICT usage found in the surveyed hotels. As it can be seen in Table.4, the average mean for the level of ICT usage is 63% indicating a greater than average level in the surveyed hotels towards the adoption of ICT systems. However, the overall standard deviation of 14.6 indicates important differences in this level across hotels.

Table.4 Final ICT Scores

	Min.	**Max.**	**Mean**	**Std. Dev.**
Number of ICT systems available	13	44	29.8	9.11
Number of interconnected ICT	0	27	7.9	7.54
Final Score of ICT Usage	67	160	101.5	25.14
The Level of ICT Usage	**42%**	**100%**	**63%**	**14.63**

4. Correlation amongst the different characteristics of the surveyed hotels

Table.5 Correlation amongst the different characteristics of the surveyed hotels

1	**Star rating**	**1**													
2	**location**	.160	**2**												
3	**Ownership**	-.072	.114	**3**											
4	**Management**	.169	.081	.239	**4**										
5	**Hotel Age**	**.355****	.011	-.044	.037	**5**									
6	**Hotel Facilities**	**.732****	.111	.124	.211	.150	**6**								
7	**Number of bedrooms**	**.822****	.011	-.077	.017	**.302***	**.614****	**7**							
8	**Full-time employees**	**.783****	.151	.044	.233	**.302***	**.622****	**.755****	**8**						
9	**Part-time employees**	.008	.038	.142	.158	.112	-.103	.128	.208	**9**					
10	**Guests**	**.710****	-.158	.086	.142	**.349****	**.632****	**.668****	**.728****	.066	**10**				
11	**Foreign tourists**	**-.342****	.043	-.215	.020	.161	**-.370****	-.248	**-.274***	.165	-.252	**11**			
12	**Customers type**	**.559****	-.006	-.193	-.035	**.318***	**.319***	**.681****	**.322***	.140	.277	-.099	**12**		
13	**Customers sources**	**.312***	**.419****	-.088	-.034	-.042	.209	**.428****	.150	-.122	-.046	.161	**.397***	**13**	
14	**Role in the business**	**.430****	.252	.223	**.373****	.240	**.364****	**.318***	**.446****	**.324***	**.445****	**-.328****	.200	-.081	**14**
15	**Duration**	-.113	-.018	.005	.025	**.353****	-.202	.006	-.006	**.262***	-.161	.139	.095	-.028	.060	**15**
16	**ICT Experience**	**.627****	-.143	-.092	-.027	.156	**.642****	**.467****	**.522****	-.185	**.605****	**-.350****	.213	-.060	.180	**-.317***

5. Depending Developing Predictive Models for ICT Uptake

Table 6 reports the results of the regression analysis (see Section 6.5). The suggested model was statistically significant (F (5) = 24.039, p < .0001) and the overall model fit (*R Square value*) was 0.686 and the "*adjusted R Square value*" was 0.658 which indicates that the model explains about 66%-69% of the variability of the response data around its mean which suggests that the model is suitable for prediction. As Table.6 indicates, the results obtained through linear regression supports the prediction that the level of ICT usage for the surveyed hotels is directly related to characterises of the individual establishments outlined above in Section(6.5).

Table.6 Results of Regression Analysis between ICT Level and Hotels' Characteristics

Model 1	Coefficient	Std. error	*t*	*p*	95%confidence Interval		Importance
					lower	*Upper*	
(Intercept)	61.963**	7.87	7.87	.000	46.18	77.74	___
Three-Star Hotels	-17.360*	5.47	-3.17	.002	-28.32	-6.40	36%
Four-Star Hotels	-12.172*	4.22	-2.88	.006	-20.63	-3.71	
Experience on ICT	2.263*	0.64	3.53	.001	0.98	3.55	39%
Full-Time Employees	3.181*	1.38	2.31	.025	0.42	5.95	17%
Number of Bedrooms	-2.161	1.35	-1.60	.116	-4.87	0.55	8%

*. $P < 0.05$ **. $P < 0.001$

This model allows us to develop the equations below which determine the level of ICT usage for hotels in the different 'Star-rating' categories:

Equation 1: ICT Level for Three-Star Hotels

$$ICT\ Level\ (\%) = 44.6 + 2.26\ Exp + 3.18\ FEmp$$

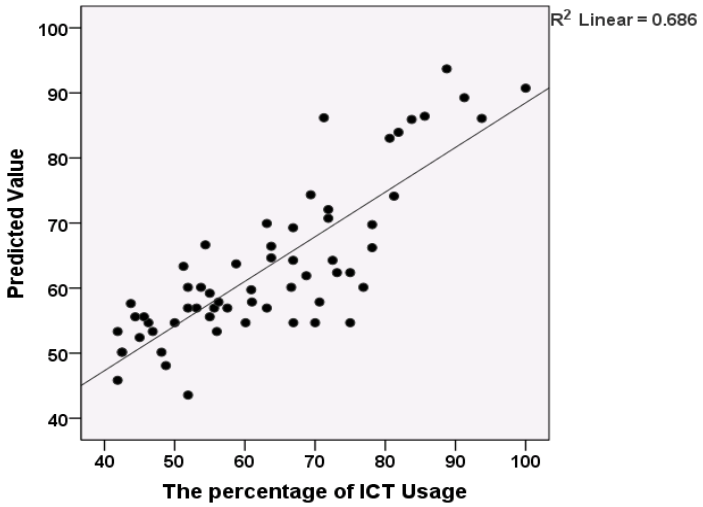
Equation 2: ICT Level for Four -Star Hotels

$$ICT\ Level\ (\%) = 49.8 + 2.26\ Exp + 3.18\ FEmp$$

Equation 3: ICT Level for Five-Star Hotels

$$ICT\ Level\ (\%) = 62.0 + 2.26\ Exp + 3.18\ FEmp$$

Where "Exp" is respondent experience on ICT ranged from 1 (no experience at all) to 10 (excellent experience) and "FEmp" is the number of full-time employees divided into 25. The following is an example of how this data can be used to predict the level of ICT usage in Jordanian upscale hotels. If we ask a manager in a four-star hotel with average experience in ICT (e.g. 5/10) and there was 125 full-time employees in the hotel, the reported percentage of ICT usage will be around 77% = 49.8 + 2.26 (5) + 3.18 (125/25). Figure.1 represents a scatter diagram for the observed value for the level of ICT usage for the each of the surveyed hotels along with the predicted values generated by the model. As can be seen in this figure, the observed the predicted values are set close to each other which indicates a good fit for the model.



FigureVI.1 Predicted by Observed Value of the Percentage of ICT Usage

6. Correlation between ICT Solutions and Marketing Performance

Table.7 Correlation between ICT Solutions and Marketing Performance.

Correlation	Financial Measures	Market Measures	Customer Measures	Invention Measures
Uptake of PMS	.094	.366**	.414**	.557**
EPOS / Restaurant MS	.206	.554**	.654**	.478**
Conference / Banqueting MS	.331**	.248	.237	.364**
Leisure Management System	.283*	.317*	.334**	.536**
Website Booking	.427**	.430**	.501**	.530**
Alternative Distribution Sys.	-.028	.483**	.432**	.431**
Global Distribution Systems	.033	.405**	.471**	.450**
Electronic Door Locking Sys.	.195	.366**	.299*	.612**
In-Room Electronic Minibar	.000	.026	.007	.136
In-Room Internet Free Access	-.200	.135	.012	.018
In-Room Internet Paid Access	.110	.078	-.023	.172
In-Room Telephone	.167	.223	.269*	.347**
Do-Not Disturb Annunciation	-.084	.368**	.437**	.245
In-Room Printing Facilities	.131	.189	.232	.242

Correlation	Financial Measures	Market Measures	Customer Measures	Invention Measures
In-Room thermostat switch	.207	.234	.161	.431**
In-Room sensor motion energy	.312*	.130	-.042	.221
Key card energy switch	.276*	.065	-.080	.309*
Guest-Operated control switch	.097	.412**	.490**	.339**
CRM System	.265*	.428**	.371**	.466**
Sales and Marketing Analysis	.267*	.409**	.430**	.473**
Yield Management System	.024	.367**	.391**	.463**
Accounts Receivable System	.091	.339**	.440**	.461**
General Ledger Accounting	.007	.394**	.460**	.471**
Human Resources System	.230	.414**	.396**	.466**
eProcurement Software	.091	.295*	.274*	.430**
Energy Management system	.168	.424**	.290*	.466**
Work Order Maintenance	.318*	.265*	.143	.316*
Desktop EPOS	.320*	.330**	.233	.509**
Hand-Held EPOS	.424**	.165	-.006	.343**
Self-Service Kiosks	.110	.162	.027	.260*
Laptops	-.199	.347**	.399**	.296*
Hand-held PCs	.040	.306*	.345**	.486**
Desktop PCs	-.245	.312*	.611**	.452**
Business eMail Account	-.099	.429**	.622**	.406**
Dial-Up Internet Access	.129	-.029	-.209	.023
Broadband Internet Access	-.197	.359**	.597**	.314*
Wired Internet Access	.093	.214	.330**	.379**
Wireless Internet Access	-.006	.275*	.490**	.455**
Company Owned Intranet	.350**	.351**	.276*	.554**
A Website	.049	.386**	.539**	.445**
Remote Access	.282*	.155	-.016	.390**
Voice-Over-IP	.109	.139	.053	.458**
In-Room Entertainment	-.175	-.179	-.257*	-.316*
Social Media	.193	.257*	.174	.309*

* . Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).